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THESIS

A BATTALION/DIVISION FISCAL CONTROL SYSTEM
FOR TRAINING RESOURCE MANAGEMENT

by

Gordon R. Jaehne

December 1981

Thesis Advisors:

Dan Boger
Jeff Ellis

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T202299

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) A Battalion/Division Fiscal Control System for Training Resource Management		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis December 1981
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Gordon R. Jaehne		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		12. REPORT DATE December 1981
		13. NUMBER OF PAGES 161
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Control Systems Training Resource Management Budget Forecasting Battalion Training Model Funding Allocations Training Management Control System Financial Management		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This thesis examines the financial control structure for managing training resources utilized by U.S. Army Forces Command (FORSCOM). It reviews the current methodology for training resource management at FORSCOM, and provides an example of the conduct of budget forecasting and funding allocations. A fiscal model is developed to improve and simplify financial management of training resources within Army divisions and battalions.		

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Data from a small scale test illustrate potential model data. Conclusions and recommendations are provided to determine if the model can be implemented in current Army budget procedures. This thesis not only attempts to focus upon current fund control system inadequacies, but also provides a clear review of the current methodology and presents a course of action to improve training resource management within Army units.

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A Battalion/Division Fiscal Control System
for
Training Resource Management

by

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Captain, United States Army
B.S., United States Military Academy, 1973

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
December 1981

ABSTRACT

This thesis examines the financial control structure for managing training resources utilized by U.S. Army Forces Command (FORSCOM). It reviews the current methodology for training resource management at FORSCOM, and provides an example of the conduct of budget forecasting and funding allocations. A fiscal model is developed to improve and simplify financial management of training resources within Army divisions and battalions. Data from a small scale test illustrate potential model data. Conclusions and recommendations are provided to determine if the model can be implemented in current Army budget procedures. This thesis not only attempts to focus upon current fund control system inadequacies, but also provides a clear review of the current methodology and presents a course of action to improve training resource management within Army units.

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ACKNOWLEDGEMENT

I would like to gratefully acknowledge the advice and direction of my advisors, Professor Dan Boger and Major Jeff Ellis. In addition, I would like to express my thanks to LTC Steven Paek who shared his time and thoughts to help me develop the division level fiscal control model proposed in this thesis.

I. INTRODUCTION

A. GENERAL

Interest continues to circulate within the legislative and executive branches of government over the accounting and control of funds within the Department of Defense. With an annual budget reaching approximately \$200+ billion dollars for FY 82 alone, and with large projected increases in following years, management and control of these large sums of dollars is an extremely sensitive political and social issue. Accordingly, the service agencies of DOD have, although perhaps reluctantly, begun processes of review to ensure their fund management controls are effective. The Department of Army (DA) has made resource management a top priority goal for future fiscal years. The advancing scarcity of financial and physical resources to support current levels of Army operations and to enhance new future programs has called for increased command interest and involvement in resource management at all Army levels.

Considerable public attention has been attracted to the large dollar figures bantered about within this Congress for the armed services, with each service struggling to provide "clear and adequate" models based on mission-related training activities to project their funding needs. The Army has been attempting to explain its activity levels within a framework

called the Battalion Training Day. Great efforts have been expended trying to average the activities of multi-faceted organizations scattered over vast geographical distances in order to provide a single common denominator for evaluating the mission-related activities of active Army units. It is questionable that such a measure will ever be valid for this purpose. Such efforts are likely to create only additional reporting requirements.

To understand the complexity of this modeling task and some of its habitual weaknesses one need only look at any specific unit. Observation will quickly illustrate that the unit's location, mission, people, local resources, and current Army unit priority will create significantly different demands for resources and consequent funding. Accordingly, system controls for fund management should focus on each specific unit and its resource management, rather than looking only to one homogeneous model to evaluate all organizations. This is necessary to ensure that any chosen resource control system can adequately conduct and provide detailed financial projections and analysis to support requests for needed training resources. The control system must be flexible, and if necessary, allow tailoring to address particular unit needs, concerns, and personalities of each command using it. With many Army fiscal procedures consuming large volumes of time and resources to support operations with questionable results, individual resource control systems for battalions and divisions are needed to address this concern.

B. CURRENT FINANCIAL MANAGEMENT STRUCTURE

The Army has a financial management system linking the obligatory funds allotted to it from the Congressional appropriations through OMB and DOD down to the actual unit placing a demand for funds. This structure for controlling the flow of funds has necessary checks and interfaces with the funds' users to account for expenditures. To date, however, resource management evaluations within financial constraints are still generally ignored by the user. This lack of a measure or yardstick to evaluate the Army's organizational activities by relevant costs gave support to the request for the Battalion Training Day denominator.

Today, Army operating funds are allocated through the Army Chief of Staff, by the Comptroller of the Army (COA), to the special operating agencies (SOA) and to the general operating agencies (GOA) funded directly by Headquarters, Department of Army. This allocation makes available a prescribed amount of funds and is normally made quarterly. The GOA's or Major Commands (MACOM) issue obligation authority to their responsibility centers (i.e., installations) through specific allotments. The total of the allotments issued to the installations must not exceed the amount of allocations received by the GOA and must be for the same time period. This ties the funding to the specific appropriations generating the funding authority. The installation's authority to incur obligations will be received on a funding document

(DA Form 1323--Funding Authorization Document (FAD)) specifying the appropriation and budget programs for which the funds may be used. The FAD is the installation's approved financial plan.

The installation's authorized funds are then debited to accounts in the Standard Finance System (STANFINS). STANFINS is the computer accounting system located on the installation which maintains the "checkbook" for the authorized funds (allotments) to be expended. The installation comptroller monitors the expenditures of these funds which, in practice, have become "ceilings" for the installation's expenditures.

Once the installation comptroller receives the FAD he will suballocate commitment authority to his subaccount holders or post departments (example: a division). This commitment authority will identify the amount of funds these departments can commit for expenditure. Commitment of funds is also on a quarterly basis, and previous quarter's funds can carry over into the succeeding quarter, except for the fourth quarter of a fiscal year. The principal funding these units receive is Operations and Maintenance, Army (OMA) dollars. This funding supports the command operating targets for the units.

At the division level within the active Army, management of the commitment authority given by the installation commander, through his comptroller, rests with the division commander. He has a Division Financial Management office

which monitors his funding authority. The commitment authority (dollars) is credited to the division Tactical Unit Financial Management Information System (TUFMIS). TUFMIS is the division's automated system for suballocating funding commitment authority to its individual units (battalions). Once funds are authorized to the tactical units they become, in principal, "ceilings" for their operating budgets. Although a proper term would be operating targets, budget is used for ease of understanding. These funds are principally for general supplies, building/construction materials, and repair parts (class 2, 4, and 9 monies) and become the battalion commander's financial resources to manage. They comprise his budget outlays to support his unit's activities.

Before examining some inherent weaknesses in the system, it may be useful to observe how a battalion-sized unit's expenditures impact upon the obligation authority of funds monitored by the installation comptroller. The example follows a request for a spare part for a tactical vehicle. The battalion would first check its Prescribed Load List (PLL) to see if the part is available. If the part is not available, a DA Form 2765-1, request for parts issue, is completed, keyed to a National Stock Number (NSN) identifying each specific part. The 2765-1 is then passed to the Division Material Maintenance Center (DMMC) which is the division's stockage point. If its authorized stockage list

(ASL) does not have the part, the request goes to the Installation Supply Division (ISD) which orders the part from a National Inventory Control Point (NICP). Throughout this period no expenditure of funds is credited to any account. If the part was stocked at an earlier point and issued, the request (2765-1) terminates and TUFMIS is credited with an expenditure from within the Division Logistic System (DLOGS), but no obligational funding has been credited. Simply, the unit is utilizing previously paid stockages and doing internal accounting.

Once a requisition is made to a NICP, whether originating in a unit or to restock ASL's, funds will be credited to the STANFINS account. This is accomplished by the Standard Army Intermediate Level Systems (SAILS) located at the installation level, and is accomplished through an interface with STANFINS. When the requisitioned part is received at the ISD, SAILS is notified and the part is charged against the appropriate allotment account in STANFINS. SAILS also monitors the suballocations to the post's departments and signals a credit entry against the appropriate department's commitment funding account, such as TUFMIS. SAILS provides the installation commander and his comptroller the automated system to monitor expenditures of his funds as TUFMIS does for the division commander.

C. THE PROBLEM

Although these procedures and reporting formats exist to account for the expenditures and usages of resources associated with unit activities, they principally are time and accounting, not mission/training-requirement, oriented. They fail to focus on the nature or level of the mission-oriented activity exercised. As a result, the budget formulation for future fiscal years and the supervision of an active unit's budget are not currently allocating resources by activities, but rather by periods.

Here enters the dilemma for reporting funding controls at each command level within the Army. Faced with the absence of a common denominator to evaluate expenditures, adjustments habitually result from "block" type cuts or additions. These adjustments, which can originate from any level, result in a funding shock-wave which will roll down until it impacts upon the lowest level utilizing the funding. Additions often provide opportunity for glut expenditures, while reductions can result in reduced operations or even possible expenditure stoppages. Examples are best witnessed at the end of fiscal years. One year may illustrate funds previously withheld suddenly released, requiring their expenditure before 30 September and creating a "buy anything that's available" attitude. Another year may find some funds depleted prior to the completion of the current year due to inflationary costs or mismanagement, requiring halts in any

further expenditures, some of which are possibly mission essential. Without a measured or controlled management of funding, unit activities will continually be disrupted.

D. THE BATTALION TRAINING MANAGEMENT SYSTEM

In 1975 the Army implemented a service-wide concept known as the Battalion Training Management System (BTMS). This program provides the framework for units to plan, program, execute, and evaluate operations. BTMS is the Army field concept of managing and evaluating training, and training resources. Although BTMS provides a logical and standardized approach to resource management, consideration of financial constraints is generally overlooked. Many commands do not understand how BTMS might help modify the impact funding disruptions have on unit activities. The typical line commander has been educated by his military experience to address the nature of the mission to be undertaken and give it ultimate consideration. Consequently, financial constraints are perceived to be "minor details" delegated to staff officers. The "can do" attitude which dominates most military thoughts has been directed to begin serious financial/resource management or face the loss of operational discretionary authority.

Before examining what, if any, adjustments or refinements can be expanded in the realm of financial management, it is necessary to understand the basic framework of BTMS itself. Prior to its inception in 1975, training of the Army's units

was envisioned as simply a command prerogative. It was understood that each commander, in conjunction with his commander's guidance, could and would develop an adequate training program to ensure that his unit was "combat ready." Unfortunately, neither the guidance nor commander could often ensure that an "adequate" program was developed. Although forecasting was meticulous and well conceived, reality saw the actual training deviating from planned activities on a daily basis. Additionally, the commanders of battalions and brigades often had been away from line assignments up to 8-10 years which created recognition and credibility gaps as they attempted to persuade their officers and NCO's to grasp their training philosophy and methods of execution. BTMS emerged as a methodology to plan and conduct an effective training program. It provides a stepwise approach to establish long and short range training calendars. However, the major concession BTMS brought was the concept of an implied contract between commanders. Once a unit training forecast was accepted by the chain of command, its proper execution was to be supported and expected by all involved to include the allocation of adequate resources.

BTMS advocates that the commander is the resource manager of his unit. In these early stages of execution, BTMS has significantly improved the organizational planning of unit activities based on timing and physical constraints, but financial considerations and management often are weak or

neglected entirely. Units like to develop grand and intricate training programs and support activities. The desire to do scuba diving in Hawaii or snow skiing in Alaska are a couple of examples. Without question, all of these envisioned activities would improve unit readiness or esprit, yet the financial costs compared to available funding often finds plans and reality far apart. A common practice utilized to adjust funding shortfalls is to rank activities as funded or unfunded. Training is forecasted for all activities and those unfunded activities not later funded must be eliminated. Under BTMS, this approach still leaves selection of many major activities to nonparent headquarters, and the system retains the tendency toward patchwork training.

A logical expansion of BTMS to encompass the necessary financial considerations is the utilization of the flexible budget concept. "The flexible budget is different from other budgets. It does not confine itself to a single level of activity, but rather is geared toward a range of activity. Also, the flexible budget is not static in nature. A budget can be constructed, even after the fact, to compare against any level of activity and costs within a relevant range" [Ref. 1, p. 348]. Currently, funding levels are perceived as "ceilings" to expenditures, with a commander's successful fiscal management evaluated against utilization of resources to the specific "ceiling" provided. Conservation of fundings is as unacceptable as overexpenditure. This is due to the

fear that future funding levels might become inadequate. Sadly, these financial planning targets often become sacred numbers to be obtained.

E. A QUESTION

Thus, a question develops. How can BTMS be refined to provide the simple budgetary analysis of unit resources for the activities programmed or executed? The answer lies in the amount of historical data already generated within the organizations. Unfortunately, that data often are not collected in a manner to provide easy reference. The major relevant costs which a commander has discretionary impact upon must be carefully and routinely supervised. Manual or automated systems could be developed to assemble the historical data associated with the unit activities. Simple calculations of past activity expenditures, averaged and retained, provides the commander with a ready, viable reference. As future, similar activities are planned, these cost estimates could help determine what future activities could be conducted and their corresponding costs. Additionally, current budgets can be monitored, comparing programmed costs to actual expenditures, allowing training adjustments to be planned and expected rather than spontaneous and disruptive. Regardless of the system utilized, it must be simple. Powerful and intricate computers or numerous laborious forms will only further burden the decision-making process occurring at the unit level.

Rather than creating a massive micro evaluation with questionable results, refinement of current procedures and possible streamlined reporting may help satisfy the funding management requirements and improve internal Army resource management.

F. THESIS ORGANIZATION

This thesis will focus on the financial control structure for managing training resources which is utilized by U.S. Army Forces Command (FORSCOM). It reviews the current methodology for training resource management at FORSCOM, providing an example of budget forecasting and funding allocations within an Army MACOM. A critique of the control structure is provided to highlight its strengths, weaknesses, opportunities and threats. Next, two principal Army-sponsored programs, related to training resource management currently being developed, are examined and discussed. Each program is discussed in terms of a general overview, current status and fielding projection, cost/benefit relationships, and problems needing resolution. Following these program discussions, the thesis introduces an alternative training resource management model, highlighting its budget forecasting and fund allocation interface with the Battalion Training Management System. The model was developed to improve and simplify financial management of training resources within Army divisions and battalions. The proposed model was field tested with the Seventh Infantry

Division at Fort Ord, California. The test data generated are presented to illustrate sample model data. The findings are reviewed to determine if any aspects of the model can be implemented in current Army budget procedures. Finally, conclusions and recommendations are provided. This thesis attempts not only to focus upon the current fund control system inadequacies, but also to provide a clear review of the current methodology and to present a course of action to improve training resource management within Army units.

II. CURRENT METHODOLOGY FOR TRAINING RESOURCE MANAGEMENT

A. BUDGET SUBMISSIONS

1. Congressional Interest

To address the growing Congressional demands for detailed information, the Army continues to seek a common methodology to report on its operations. Its search is to improve both its financial control structure and its output measurement. "Output information is needed for two purposes: (1) to measure efficiency, which is the ratio of outputs to inputs (i.e., expenses); and (2) to measure effectiveness, which is the extent to which actual output corresponds to the organization's goals and objectives" [Ref. 2, p. 227]. Since the Army is a nonprofit organization, there is obviously an absence of a profit measure in monetary terms. Thus an adequate nonmonetary substitute is needed to measure its efficiency and effectiveness.

2. Installation Procedures

As in any organization, output measurement begins at the responsibility center level (installation). The current method used by FORSCOM installations to reflect outputs occurs through their Command Operating Budget (COB) submissions. In March and April prior to a new fiscal year, installations formulate and submit to FORSCOM their COB's utilizing detailed guidance. The input information of costs associated to the

training activities provides an initial identification as to the level of training output to be accomplished that year. Each installation explains in detail the training costs by training issue and training event category. These estimates become the installation inputs to the FORSCOM COB.

3. FORSCOM Procedures

As the installations' COB's are received at FORSCOM headquarters, consolidation begins immediately. FORSCOM must have its budget submission forwarded to Army headquarters by July. A budget timetable is shown below:

Internal to the Army: (COB submissions include upcoming FY and two outyear FY's)

April - Installations receive budget call

May - Installation COB prepared

June - FORSCOM COB prepared

July - FORSCOM COB forwarded to Army headquarters

October - Approved appropriation received, monies allotted to MACOM's

Congressional timetable:

15 Jan - President submits new FY budget to Congress

15 Mar - Budget Committees begin budget review

15 Apr - First Concurrent Resolution reported

15 May - Congress completes First Concurrent Resolution

15 Sep - Congress completes Second Concurrent Resolution

1 Oct - Budget approved, new FY begins

Once received at FORSCOM, the budget submission format begins to aggregate costs across associated activities. Dollar estimates are grouped in 42 program issues which comprise the Operation and Maintenance Army (OMA) appropriation Program 2 (General Purpose Forces) Mission costs. (Appendix A displays the 42 P2 Mission funding issues.) At present the appropriation framework does not allow corresponding activities to accompany funding requests up to Congress. Only cost data associated with appropriation programs are reviewed by agencies higher than a MACOM. Program activity levels are not required by law to be reported at this time.

4. Training Activity Reports

FORSCOM provides information to Army headquarters which attempts to highlight training activities and associated costs. FORSCOM claims that Schedule 40--Quantification Data (Program 2, Mission) and its supporting documents, RSN 015-P2 Mission Issues by EOE (OMA), RSN 016-P2 Mission Issues by Category of Training (OMA), and Schedule 40-1--Quantification of P2 Mission Costs by Training Event Category, are used as field input to all short and long range training resource requests by HQ FORSCOM in support of the Planning, Programming, Budgeting cycle. Training resources are justified by comparing training requirements with training events that can be purchased with available funds, and by comparing annual costs accrued by like units. Workload data such as Battalion Days (BD) and Battalion Equivalents (BE) are the common denominators

that are designed to provide equivalence to training event duration and organization size. [Ref. 3]

The workload factors BD and BE are defined as follows:

(1) Battalion Day (BD)--A calendar day or portion thereof (defined in increments of .5) during which a battalion or BE is engaged in a definite activity. A Battalion Training Day (BTD) is further defined as a battalion day of activity planned or accomplished for the primary purpose of furthering the unit's training program.

(2) Battalion Equivalent (BE)--A factor assigned to units smaller than a battalion. Battalions are divided into organic subunits--troops/companies/batteries, platoons and squad/crews. Each subunit is assigned a proportional battalion equivalent factor based upon the percent of the battalion represented by the subunit. A battalion of 5 companies, each with 4 platoons and 16 squads, would report BE's as follows:

Each company - .2 BE

Each platoon - .05 BE

Each squad - .01 BE

The data developed in these reports were intended to provide the basis to allocate funds to installations for their training levels and activities. However, FORSCOM's Deputy Chiefs of Staff of Operations and Comptrollership recognize that the current information is not sufficiently accurate to allocate training funds. The reports are useful

only as statistical arrays of installation data projected into the 42 training issues for P2 Mission funds with their associated training event categories. Appendix B is a detailed explanation of five of the possible 42 training issues and their associated training event categories. The information required from each unit, later to be compiled into an installation level input, is illustrated at Figure 2-1. The FY 82 Training Budget Estimate must be completed in days and dollars for each of the 42 training issues which apply to a specific unit. Some training issues and training event categories do not apply to all units or installations. An example of a completed FY 82 Training Budget Estimate for the training issue, Training of Platoons and Companies, is shown in Figure 2-2. Appendix C provides definitions for the Training Budget Estimate terms.

The reports require significant data collection. Supplies and equipment worksheets must be completed for each training event category at each location within each training issue. However, the key in this system to obtain the necessary supply and equipment estimates requires realistic estimates of the miles/hours/rounds associated with the execution of each training event. Use of unit records to determine historical equipment usage is expected. This requires current cost factors for each item of equipment in a unit. These factors are not habitually maintained and there is no simple system currently present for doing so. An example of a

FY 8 TRAINING BUDGET ESTIMATE

UNIT:
TRAINING ISSUE:

Local tion	Event Category	# of Days	\$ Air	Travel/TDY Rail Bus	Personnel Misc	\$ Air	Trans Rail	(Equipment) Truck Misc	\$ Contr	\$ Suppl/ Equip	\$ Total
Ft X											
Ft Y											
Ft Z											
Other											
	Total Days/Dollars										

FIGURE 2-1

UNIT: 1-1 Inf
TRAINING ISSUE: TRAINING OF PLATOONS AND COMPANIES

Location	Event Category	# of Days	\$ Air	Travel/Day (Per Personnel)	\$ Air	Rail	Bus	Misc	\$ Trans	(Equipment)	Truck	Misc	\$ Contra	\$ Suppl/Equip	\$ Total
Ft X	Contingency Mission Tng Plt ARTEP & Tng	2 28												10,556	10,556
Ft Y	Plt/Co ARTEP & Tng	25											500	53,016	53,016
Ft Z	Co EDRE	2.5												4,598	4,598
Other	Alaska Spec Envir (NWTCA) Irwin Co Live Fire Hawaii Co ARTEP/Tng	3 1 3.2	70,000 140,000	50,000 3,000					60,000					2,145 137,747 19,544	72,145 187,747 168,544
	Total Days/Dollars	54.7	210,000	53,000					60,000				500	227,606	497,106

FIGURE 2-2

partially completed FY 82 Training Supplies and Equipment Worksheet for Training Event Category--Platoon and Company ARTEP Training--is shown in Figure 2-3 (ARTEP: Army Readiness Training Exercise Program).

The creation of Schedules 40 and 40-1 has required installations to submit budgetary information in such detail that all information is generally meaningless. The detail required to develop the data described implies each number generated is relevant and factual. Unfortunately, the data are generated at unit levels by well-intended personnel often lacking the financial management skills now demanded by these reports. The command structure is relying upon units to capture and retain historical training data and to correlate it to costs. Neither the financial tools nor personal skills are currently adequate to ensure that the generated information is accurate, much less useful. Consequently, the reports presently fail to accurately project training activities and their associated costs.

B. FUND ALLOCATIONS

1. P2 Mission Funds

The allocation of funds for training activities for FORSCOM units originates from P2 Mission, OMA funding. As explained earlier, these funds have been categorized into 42 training issues for allotment control to the individual installation accounts. Five of the 42 issues provide the principal funding requirement (33 percent) for training activities

UNIT: 1-1 Inf

EVENT CATEGORY: PLATOON ARTEP AND TRAINING (FT X)

M/ES	Nomenclature	# to be used	Est mi/rd/hr per item	Est Total mi/rd/hr	COST Pol \$ (mi/rd/hr)	FACTORS CI 9 \$	TOTAL Pol \$	COST CI 9 \$	
55 B7 3C	Radio set AN/PRC 77 Truck 2 1/2 T Truck 1/2 T	30 8 10	200 hr 100 mi 200 mi	6000 hr 800 mi 2000 mi	.02 .27 .16	1.47 .80 .22	120.00 216.00 320.00	3820.00 640.00 440.00	
							Total 656.00	3900.00	
	EVENT CATEGORY: SPECIAL ENVIRONMENT (NWTQ) ALASKA								
55	Radio Set AN/PRC 77	6	240 hr	1440 hr	.02	1.47	28.00	2116.00	
	EVENT CATEGORY: COMPANY ARTEP/TRAINING (HAWAII)								
55 8C B7	Radio Set AN/PRC 77 Truck 1 1/2 T Truck 2 1/2 T	10 2 8	200 hr 350 mi 350 mi	2000 hr 700 mi 2800 mi	.02 .25 .26	1.47 1.75 .17	40.00 175.00 728.00	2940.00 3580.00 476.00	
68 G8	Truck 1/2 T Truck 5 T	20 1	350 mi 350 mi	7000 mi 350 mi	.16 .34	.22 .85	1120.00 119.00	1540.00 290.50	
							Total 2182.00	17,362.50	

FIGURE 2-3

at the installation. They support the resource demands generated from the units' BTMS activities. The five issues are:

- Training of Individuals, Squads and Crews
- Training of Platoons and Companies
- Training of Battalions
- Training of Brigades and Divisions
- Force Sustainment or Garrison Operations

2. Mechanized Battalion Cost Equivalent (MBCE)

In response to the possible variations inherent in the budgetary submissions previously discussed, FORSCOM selected a new procedure to allocate training funds. The format is known as the Mechanized Battalion Cost Equivalent process (MBCE) which utilizes a perceived common cost factor between types of units. The numerical relationship was developed using cost figures from a document called the Army Force Planning Cost Handbook (AFPCH). The handbook lists approximately 100 different types of units with associated acquisition, recurring and indirect costs. The MBCE assumes that a proportional relationship exists between the listed recurring costs in the AFPCH. The MBCE uses the costs for units at ALO 1 (highest readiness posture). The Mechanized Infantry Battalion (MIB), being the most common unit in the force structure, was selected as the base unit and its cost was equated to 1. Each remaining type unit's recurring cost was factored against the MIB cost to determine its own relative cost factor. With each unit identified by cost factors in relation to the MIB, each installation is summed by type of

units with associated MBCE factors. The determined MBCE factored sums measured against the FORSCOM MBCE sum becomes each installation's training fund percentage. Once FORSCOM receives its funding allocation for a new fiscal year, the five listed issue allocations are summed and funds are distributed to each installation according to its determined MBCE percentage. An example installation funding allocation would be:

Problem: Determine installation X's training fund allotment using MBCE.

- Given:
1. FORSCOM FY 8_ training fund allotment is \$200 million.
 2. All FORSCOM Battalion Equivalents equal 100 BE's.
 3. Installation X has 15 BE's.

Answer: $15/100$ times 200 equals \$30 million.

Consequently, the five issues serving as the principal source of funds for each installation training budget are allocated by numbers of type units, not by activity levels, conducted by type unit.

The total funding in these five issues allocated to FORSCOM was \$251 million in FY 81 alone. This money was proportioned among its 17 commands. Once the funding for these five issues was determined, minor sensitivity analysis was conducted based upon the previous year's funding allocation. The intent was to raise as many installations' funding to at least last year's level as possible. The 37 remaining P2 Mission training issues with a total funding requirement

of \$469 million, were addressed and allocated by separate issue. As a result, approximately one-third of all P2 Mission funds, but 100 percent of a unit's training budget, was allocated by the MBCE methodology. This is a significant amount.

C. ANALYSIS

To explore the MBCE allocation methodology and any possible training intensity projections, a simple outline format will be utilized. The format will identify and critique the strengths, weaknesses, opportunities and threats of the current funding control structure and its output measurement within FORSCOM.

1. MBCE--A Financial Control System

The MBCE methodology appears to center on the credibility of two assumptions. First is the assumption that the relationship between recurring costs from the Army Force Planning Cost Handbook are relevant and proportional. Second, the assumption is made that the level of financial activity during FY 81 and the previous years was adequate to meet minimum combat readiness standards. The following outline highlights the MBCE allocation:

a. Strengths

(1) Provides a common allocation base for up to one-third of P2 Mission funding.

(2) Becomes a first step to provide standard cost allocation to the installations within FORSCOM.

b. Weaknesses

(1) Uses possibly outdated figures:

- Army Force Planning Cost Handbook originated from the Field Army Operating Cost Data (FAOCD).

- FAOCD was discontinued prior to 1977, cost updating for AFPCH addressed only annual inflation projections (inflation figures for most recent years being between 8 and 12 percent).

- AFPCH lists only 100 (40 percent) of all active types of units. A special computer printout has to be requested to gain data on the remaining type of units located within FORSCOM not listed in AFPCH.

- AFPCH costs do not reflect impact from extensive new and sophisticated equipment added to all units after 1977.

(2) Fails to address unfunded requirements from installations.

(3) Allows continuation of detailed COB submissions that are not utilized for up to one-third of all P2 Mission funding.

(4) Fails to address Army prioritization of specific FORSCOM commands. Funds are allocated only by MBCE percentages.

(5) Provides no association to activity levels conducted at installations for allocated funding.

c. Opportunities

(1) System continues to allow funding, on approval, to be moved within and between issue accounts at FORSCOM and installation levels.

(2) Provides a simple method to allocate additional new Rapid Deployment Force funds to units associated with the RDF mission.

(3) Provides a first step for a possible future standard to address Congressional interest on how funding is allocated and what the dollars are buying.

d. Threats

(1) No checks are required to ensure that projections of mission training requirements are accomplished prior to budget submissions. Command mission training forecasts may fail to precede budget timetable demands. When this occurs, commands are then forced to "fit" required training within fund allocations.

(2) Will commanders spend monies in issues allocated, or reallocate and continue annual pressure with additional unfunded requests?

2. Training Intensity Projections (An Output Measurement)

From data inputs by installation, FORSCOM developed training intensity projections within its command. Appendix D illustrates some of the analysis conducted for a recent budget year. These projections illuminate some of the

inconsistencies which exist in current output measurements.

The projection highlights follow:

a. Strengths--Provides a model to measure outputs consistent with current guidance using BTD's versus BE's.

b. Weaknesses

(1) Vague definition of BTD's allows for inconsistent determination of BTD's programmed or accomplished at each installation.

(2) Cost-saving incentives still fail to exist. Monies serve as ceilings to training; spending goals must be accomplished or face curtailment of later funding.

(3) Determined BTD's normally do not include activities from Reforger, Joint Exercises, National Training Centers, Fort Drum, JWC and Alaska. Consequently, all activities conducted are not projected.

c. Opportunities--Leads to costing by activity level by type unit, not by random allocation or game playing.

d. Threats--Could lead to objective measurement of commanders and commands by dollars to training conducted rather than by subjective intuition and combat readiness.

3. What Are Our Dollars Buying?

The present financial control structure utilizing MBCE fails to adequately measure what our dollars are buying. Although it provides the first step to address common cost allocation, FORSCOM representatives immediately agree that the critical missing link remains output measurement.

MECE ignores projected activity levels at installations by costing only the number and type of units.

An additional major shortcoming of the present methodology is its failure to account for the significant increases in unfunded training requests. In FY 81, they reached \$110 million against funded allocations of \$251 million. This represents a simple statement that 43 percent more funding is needed to meet the expressed training demands from field installations within FORSCOM alone.

The question as to how do these unfunded requests (UFR's) occur undoubtedly is more significant than any one request's financial demand. An explanation arises after examination of the vague parameters which now measure outputs of training activities. First, costing is being accomplished in isolation at each installation. Little coordination or exchange of internal control procedures occur between commands. Costing becomes nonstandard as a result. Each command appears to be using different procedures in collecting cost data. Local factors such as personnel capabilities, the environment, and training facilities result in cost variances. Finally, different personalities, with accompanying interpretations and expectations, become influential. The existence of such significant UFR's supports the belief that the Schedule 40 and 40-1 reports are currently little more than eyewash.

Simply, the current output measurements will not improve until new guidance is provided on what outputs are

actually to be measured. Today, one is measured on successfully expending all allocated funding up to its exact dollar value. Over or under expenditure is equally perceived as an inadequate accomplishment. Savings are not encouraged nor are any direct evaluations conducted to compare activity accomplishment to funding expenditures.

Should we allocate dollars by using dollars spent previously, numbers of type units, or activity levels conducted? Do we measure by absolutes or intuition? Will we exercise control to obtain the output measurement? These questions will have to be addressed if the financial control structure and its accompanying output measurement will adequately detail what it is that operational dollars are buying. The key is the adoption of a simple methodology which will allow fund allocation to occur based upon meaningful information, and which will provide the tools for resource management down to and including unit level. Such a methodology must provide a means of ensuring that training requirements of each level are closely tied to fund allocations through an effective forecasting system. Having recognized this fact, the Army has initiated efforts to develop such a methodology. The primary efforts are discussed in the next chapter.

III. CURRENT DEVELOPMENTS IN TRAINING RESOURCE MANAGEMENT

A. GENERAL

Unit training costs are difficult to define and identify because they are included with non-training costs in Army accounting systems. The Army-wide standard costing methodology for unit training should be based upon a system which can relate to actual costs, variances determined, and variances applied to standard cost factors. This would allow for accurate identification of unit training costs.

Unit training costs are predominately the cost of operating equipment, but other costs such as individual travel and transportation, transportation of equipment, special training devices, and other items can also be considered training costs. Since construction funds, repair and maintenance of facilities, and procurement of tactical equipment are budgeted and justified separately, they should be excluded from unit training costs. Therefore, the problem facing the Army is to develop a costing methodology which will provide creditable budget justification to make training management decisions at a minimum cost in dollars and turbulence in the tactical units. The costing methodology should:

1. Provide training cost estimates with a degree of acceptable accuracy to support budget requests.

2. Provide training cost estimates at the division and separate brigade level to provide a basis for issuing MACOM funds to these units in accordance with MACOM training priorities.

3. Provide training cost estimates at the battalion and separate company level to provide a basis for issuing bulk fuel and supplies allocations to these units in accordance with division training priorities.

4. Provide a standard costing system, simple to operate, at unit and division level which will identify training resource costs by training event for programmed and accomplished training.

5. Provide a system and procedures at installation level to develop standard cost factors, reconcile unit training standard costs to actual costs recorded in other installation systems, and fine tune standard cost factors so that computed standard costs for unit training are within an acceptable variance to actual costs. [Ref. 4]

The desired accounting or cost system must provide information so commanders can make better decisions. The benefits derived from the decisions made with this information must exceed the cost of generating the information. Currently, two proposed standard cost models are being developed which address the unit training costs associated with P2 Mission funding. They are the Training Management Control System (TMCS) at FORSCOM and the Battalion Training Model (BTMS) at

U.S. Army Training and Doctrine Command (TRADOC). Unfortunately, to date neither system has successfully captured data that reflect actual costs incurred with sufficient accuracy or consistency. However, both projects continue to be closely monitored by the Army Chief of Staff's office, illustrating the interest and determination by the Army to acquire an adequate training cost management system.

B. TRAINING PLANNING PROCESS

TMCS and BTM are to be integral parts of the training management process. That process is described in Army Training Circular 21-5-7. Both systems hope to give the training manager a simple, easy way to include resource requirements in the training planning process to ensure that the program can be conducted.

To obtain the resources it needs to train, the Army must tie its training plans to the continuous process of training planning. Both concepts propose that training which cannot be conducted because of limited resources can be explicitly described and the impact of not accomplishing the training can be better described in budget justification. Each system is designed to be an integral part of the budget process as well as playing a significant role in planning and programming resources within the division.

C. TRAINING MANAGEMENT CONTROL SYSTEM (TMCS)¹

1. System Overview

General: TMCS is to be a simple to operate mini-computer system located in the brigade and division operation sections for use by training managers. It was designed to help the battalion commander and his staff develop training plans that can be conducted within resources made available for training. At division level, TMCS was designed to help the division staff develop the Division Resource Plan by identifying resources that must be set aside for garrison support, resource allocations to support training programs, and resource shortfalls. It is used to identify training resource requirements (supply dollars and fuel) on the basis of equipment and weapon system usage. TMCS further uses an application of a standard cost accounting technique using detailed equipment operating cost factors. TMCS also will identify training ammunition and garrison costs. It presently uses fuels, Class 9 repair part expenses, and aviation flying hours as its principal resource constraints. Figure 3-1 illustrates the TMCS role in an Army-wide standard costing system for unit training. Figure 3-2 is a schematic showing the role of TMCS in the training management process.

¹ The TMCS system overview and benefits comments were selected from the "Standard Cost Procedures for the Training Management Control System" prepared by U.S. Army Forces Command, Fort McPherson, GA, dated July 1979.

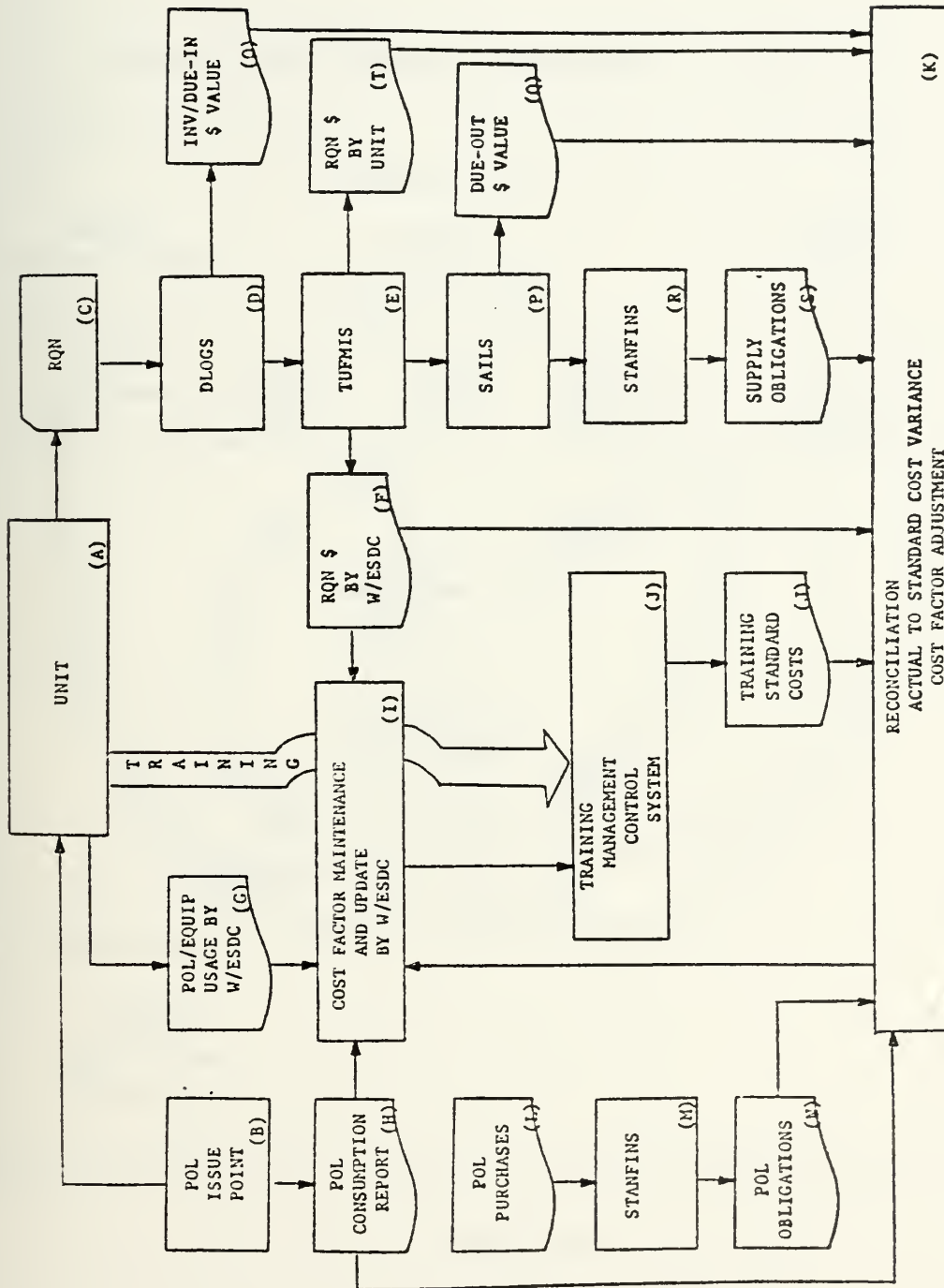


FIGURE 3-1

TMCS IN THE TRAINING MANAGEMENT PROCESS

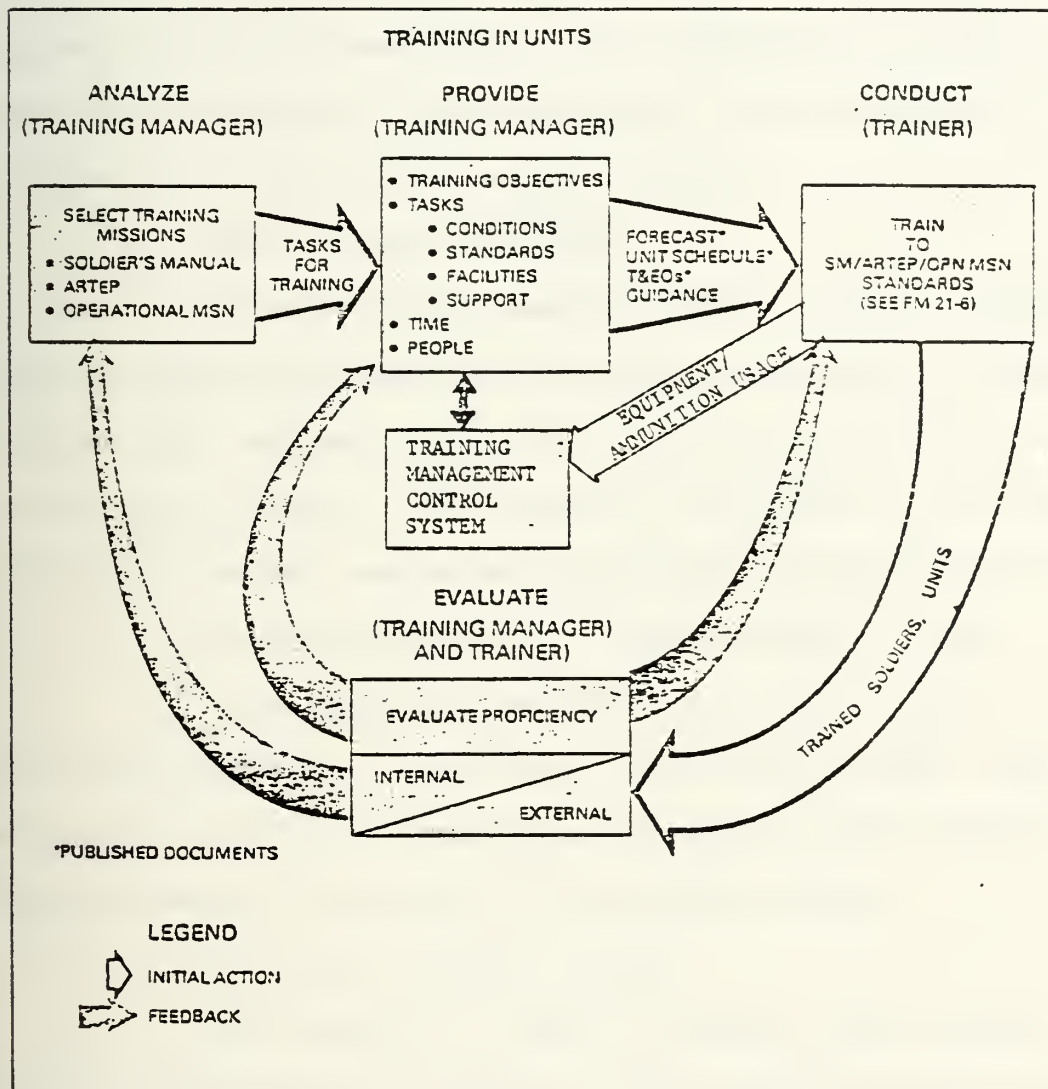


FIGURE 3-2

Division TMCS: Division level TMCS operations not only include resource planning but they also develop master files used in battalion level TMCS to simplify operation at that level. For that reason, a discussion of a division level TMCS is in order before addressing the heart of the system, battalion level TMCS. The schematic at Figure 3-3 shows the functions of division TMCS. Applications of a division level TMCS are described below:

a. Option List Selection

Division TMCS receives summary tapes of battalion TMCS training and ammunition programs, previously prepared division TMCS summary tapes, and input entered directly by the training manager. The system is designed so the operator (training manager) can select the option he desires to run.

b. Division Roll-up of Field Training Costs

This option summarizes the field training costs from each battalion. The report reflects division level maintenance costs for spare parts added to the battalion training costs on the basis of equipment usage.

c. Division Program 2 Costs

This option is used to develop the Division Resource Plan and it provides a report by unit and by type of resource. The resources required are shown for both garrison operations and field training. Resource shortfalls are shown when the division resource plan exceeds budget guidance, funding targets, or flying hours. The report

DIVISION TRAINING MANAGEMENT CONTROL SYSTEM

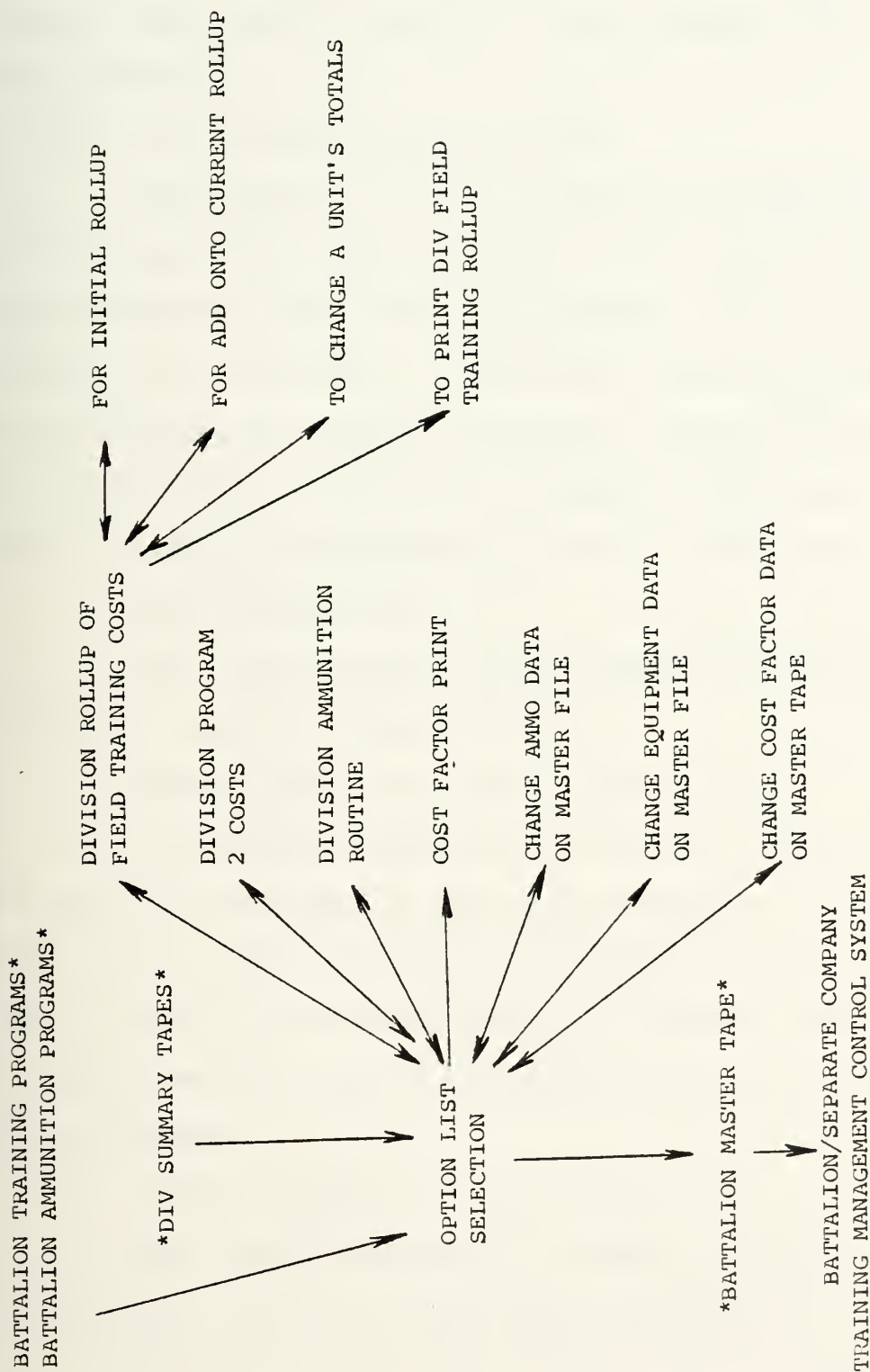


FIGURE 3-3

provides information to develop fuel, spare parts, self-service supply center, and flying hour allocations to units to finance their garrison operations and support their field training programs.

d. Division Ammunition Routine

This option is used to develop the Division Ammunition Plan and it contains the division authorization, battalion training ammunition requirements, with shortfalls and excesses by type round. It is used to develop annual ammunition estimates, identify trade-off possibilities within authorized flexibility factors, and prepare ammunition authorizations to units to support their training programs.

e. Cost Factors Print

This option prints the Equipment Operating Cost Factors Table used by battalion TMCS.

f. Change Ammunition Data on Master File

This option enables the division to build and update ammunition tables for each type battalion. It provides division control over the type of ammunition planned to be used by the units in battalion TMCS. It enables these tables to be updated as new types of ammunition are introduced or prices are changed.

g. Change Equipment Data on Master File

This option enables the division to build or change equipment tables for each type battalion.

h. Change Cost Factor Data on Master Tape

This option is used to record updates to cost factors developed by the installation comptroller. These cost factor tables are used in battalion TMCS.

Battalion TMCS: Battalion TMCS are to be operated by personnel in the battalion located in a brigade headquarters so each subordinate battalion can share the system to record training plans. It provides resource costs of those plans and training that have been accomplished. Figure 3-4 is a schematic showing the functions of battalion TMCS. Applications of a battalion level TMCS are described below:

a. Option List Selection

Battalion TMCS operates on a master tape containing computer programs plus equipment, ammunition, and cost factor tables generated in Division TMCS. It is designed so the operator (individual from battalion S-3 section) can select from a list of options to run.

b. Print a Training Worksheet

This option prints a training information worksheet using the equipment table developed in division TMCS. A separate worksheet is completed for each training event planned and it is used to input training event data into the system.

c. Create or Add to Training Program or Delete Events

This is the option used to record in the system training event data from the worksheets. This option is also used to add or delete events from the training program.

*ONE MASTER TAPE

COMPUTER PROGRAMS

COST FACTORS

EQUIPMENT TABLES

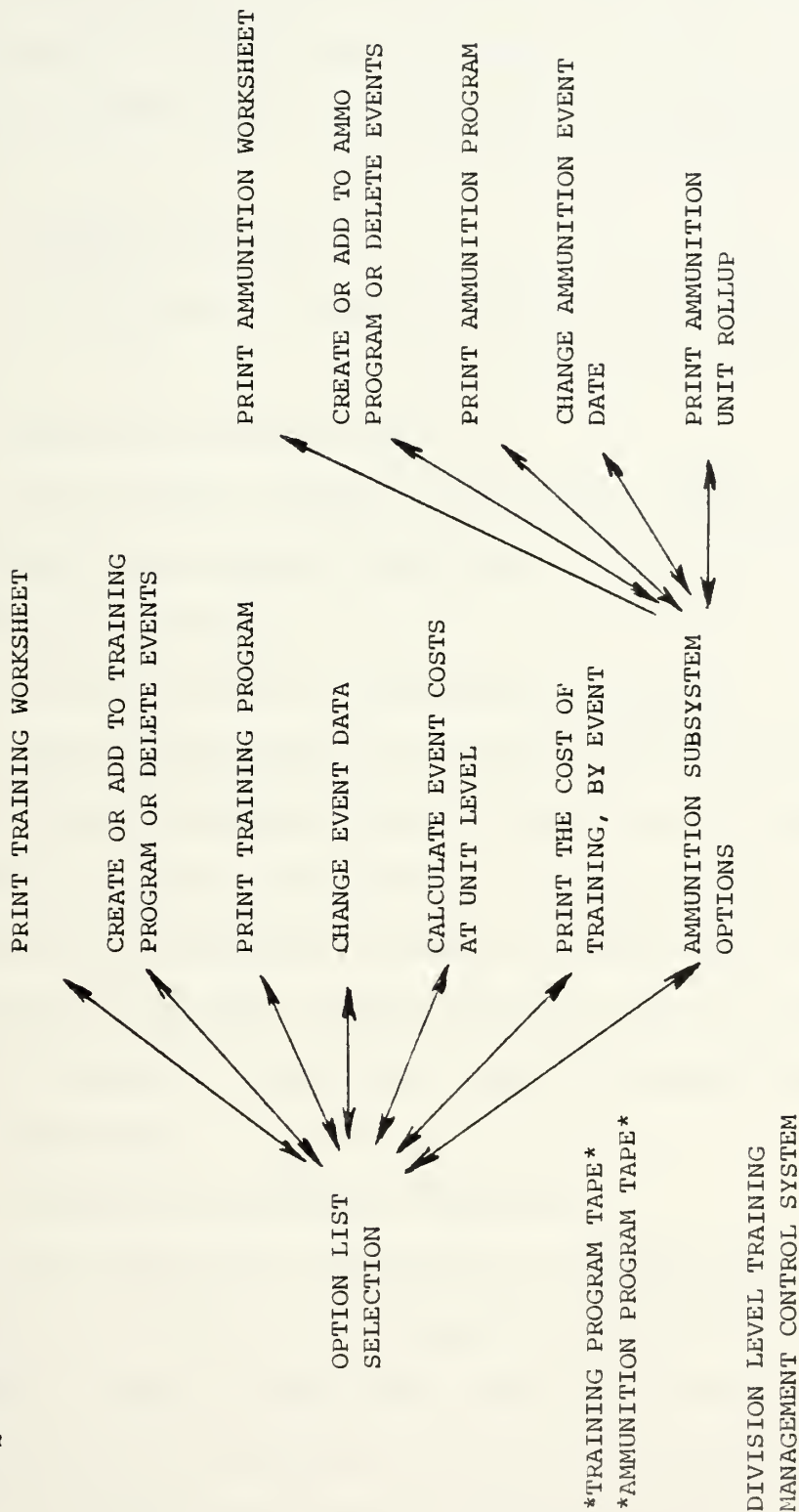


FIGURE 3-4

d. Print Training Program

This option prints training event data for each event. It can be verified and approved as valid. An option is available to print all events or only those selected by name.

e. Change Event Data

This option is used to change previously entered data.

f. Calculate Event Costs

This option computes the resource cost of each training event by multiplying equipment usage by its equipment operating cost factor.

g. Print the Cost of Training, by Event

This option prints the resource cost of each training event and determines which events can be accomplished within resource limitations. It can be run with or without resource limitations. Battalion TMCS has the flexibility for the commander to make changes until he obtains the training program he wants that can be accomplished within his resources.

h. Ammunition Subsystem Options

The ammunition subsystem is designed similarly to the training portion. A worksheet is produced with all the authorized types of ammunition for that type unit. A separate worksheet is completed for each event that requires ammunition. Data for each event is entered into the system,

printed and verified. An option is also available for changing, adding or deleting ammunition data. TMCS summarizes all ammunition requirements for training that can be conducted, compares it to the battalion ammunition authorization and identifies the types of ammunition that are over or under programmed.

2. Current Status/Fielding Projection

TMCS has been field tested at Fort Hood, Fort Carson, and Fort Bragg and received approval for Army-wide implementation. The system originally was tape oriented and required many manual tape changes during processing. To eliminate this problem and to accommodate future training needs, the computer configuration was changed to a disk system. This change should allow TMCS equipment to also support the soldier's Skill Qualification Test (SQT) scoring at each installation. The new configuration will provide an extra two million bytes of on-line direct access storage and will support the attachment of an optical scanner to read score sheets.

The procurement action for the TMCS minicomputers was selected by the Small Business Administration (SBA) for set-aside to a disadvantaged vendor. The company under consideration is Pulau Electronics. This action by SBA has caused some delay in the procurement schedule. Pulau Electronics proposed using the Texas Instrument (TI) 990 Minicomputer Model 1, which was a change from the International Business Machines (IBM) system field tested earlier. An evaluation

of Pulau Electronics' proposal is still pending by Computer Systems Selection and Acquisition Agency (CSSAA). CSSAA and FORSCOM are also evaluating benchmark data, vendor furnished linear programs and changes to software necessary for TMCS to run on the TI equipment. If deficiencies can be resolved, a contract award may occur in the spring of 1982. The contract will specify a minimum order quantity of 199 to support Combat, Combat Support and a very limited number of Combat Service support units. A maximum order quantity of 300 mini-computers is to be included in any awarded contract. Any additional equipment is to be ordered on an "as required" basis.

If a contract with Pulau Electronics is awarded, the earliest delivery schedule for the first 20 computers would be 18 months later, followed by 40 each month thereafter. FORSCOM desires 28 computers prior to the first scheduled delivery in order to complete refinements of software, development of operator manuals, preparation of training packages, and to conduct new field validation testing of the TI equipment. The selection by SBA to procure TMCS equipment from a disadvantaged vendor has delayed TMCS fielding by at least two years. If Pulau Electronics is not accepted for final contract award, the program could witness even further delays.

3. Benefits

TMCS is a new concept in planning and programming training resources in the Army. Its introduction would be

a first step in using computers in units to aid in decision making. All of the benefits of TMCS will probably not be recognized until after it is implemented; however, some benefits identified to date are:

a. Realistic Training Plans

Commanders should be able to develop training programs with confidence that their resources will allow them to conduct the training. Last minute training program changes because of sudden resource shortfalls will be minimized.

b. Valid Training Costs

TMCS has the potential for providing valid training cost estimates for the budget and the Army. Commanders at all echelons can staff the resource requirements for training. This capability could give the Army a justifiable training budget. Commanders could then allocate resources with the knowledge that they are adequate to support the training with which they are associated.

c. Valid Ammunition Estimates

TMCS should provide ammunition estimates on the basis of specific training plans. Valid ammunition estimates are essential for the Army to plan ammunition production within limited resources and produce the now high cost rounds that are being introduced. Commanders will be able to identify, far in advance, any ammunition shortfalls and plan training accordingly.

d. Minicomputer Capability

TMCS provides a minicomputer that can be programmed in a language that is easily learned. With most young officers receiving computer programming instruction in college today, this added capability should enable units to perform routine time-consuming tasks on the computers to solve unit problems. This benefit has already been realized by the test sites.

e. Cost

The Army has established the requirement to identify training costs in the budget. Developing these costs at installation and division level is a time-consuming and difficult process and their accuracy is questionable at present. It is estimated that over time cost savings experienced with the manual development of training costs for the budget will go a long way towards paying for the TMCS minicomputers.

4. Areas of Concern

With the implementation of TMCS, computers would be introduced into units to aid in decision making. Yet TMCS alone will not completely answer all areas of concern surrounding improved control of resource management at unit level. Problems requiring resolution which TMCS still needs to address are:

a. This standard cost system does not appear to be simple to operate. As described, TMCS will require every

activity, planned and conducted, to be costed in detail. Budget forecasting would be accomplished by totaling each separate activity's cost projected during a fiscal year. The time required to develop the detailed equipment operating cost factors cannot help but be lengthy and time consuming. To date, battalion personnel have not prepared the detailed operational planning TMCS would now require. TMCS would have units recording numbers and types of all equipment used, miles traveled by each vehicle, and all resources used by each item of equipment for every training activity conducted. Undoubtedly, the key leaders would have to do all of this detailed planning, requiring more demands upon their limited, valuable time. TMCS may provide a "simple to operate" piece of hardware, but the time and action required to provide its input data appears to be excessive. TMCS appears to cause battalions to become deeply involved in data management, detracting from their principal mission of executing effective training.

b. The long range costs of the system are still unknown. TMCS advocates state that assigned unit personnel can easily operate the fielded system. However, TMCS is not just a new piece of hardware to train a soldier to operate. It represents a new, expanded responsibility incurred by units. With units now struggling just to accomplish today's myriad of requirements, it is hard not to envision a call for additional skilled personnel to perform this new duty.

New personnel will only further complicate unit manning assignments. Valid life cycle costs are still to be determined. Simply, TMCS may increase unit workloads it was designed to diminish.

c. System usage appears minimal. The principal usage of the system would occur for the annual, midyear, and quarterly budget forecasts/estimates. The other major usage would be the data updating/recording process. Thus, it appears the system would be idle most of the time with only a few peak demand periods.

d. Valid cost estimates are questionable. Estimates can only be as good as the data input into the system. Units pressed for time or having poor data collection procedures and standards will not produce valid estimates. Since the validity of estimates produced by TMCS are dependent upon "good" data input, the system may prove to be a considerable expense in time, personnel, and resources which may produce marginal results.

e. The cost estimates do not provide a basis for issuing MACOM funds to units in accordance with MACOM training priorities. As outlined, TMCS does not provide a common denominator for a MACOM to allocate training funds. TMCS was designed to determine specific unit activity costs. The system cannot measure effectiveness for it does not establish a fixed or common measure to evaluate training activities. TMCS costs all activities, but does not define, group, or categorize activities to ensure comparisons remain valid.

D. BATTALION TRAINING MODEL (BTM)²

1. System Overview

Initial development of the Battalion Training Model (BTM) occurred as a result of the Army Training Study (ARTS) conducted in the 1978-79 time frame. The model was formulated as a linear goal programming mathematical model of both training and non-training programs as conducted by a typical battalion. Initially the model was used as a research tool to investigate a variety of training strategies and to perform sensitivity analysis on factors affecting training. In the latter stages of BTM development it was envisioned by ARTS that the model could be maintained at battalion level to assist commanders in formulating their training programs. It was also envisioned that the model could utilize the hardware planned for TMCS. In March of 1979, the Chief of Staff of the Army (CSA) was briefed by the ARTS group. One recommendation made in the briefing was continued development of BTM. The CSA concurred and directed that TRADOC continue to develop BTM.

When the BTM was moved from ARTS to Unit Training Developments Directorate, HQ TRADOC in August 1979, an investigation to determine the feasibility and desirability of locating the model at battalion level was initiated.

² The BTM system overview comments were extracted from briefing documents/notes prepared by the Office of Unit Training Directorate, Deputy Chief of Staff for Training, Headquarters TRADOC, Fort Monroe, Virginia.

As a result of this investigation, it was determined that the best course of action was not to locate the model at battalion level but rather to put the model at division/installation level. The basic rationale for this was that it is at division/installation level that the real management and control of training assets occur and hence is where the model could be most useful. Also, at this time it was determined that for the BTM to be a truly valuable training management tool it would not only have to produce optimum training programs but also should be able to schedule the training in accordance with available training assets. Figure 3-5 provides a graphical display of the BTM system.

The purposes of the model are to provide a quantitative link between training resources and training readiness, to assist the training manager, to show the effects of training distractors, and to provide budget justification for training funds. The model attempts to quantify training requirements in terms of training readiness and considers cost resources (POL, repair parts, ammo) and training resources (time, people) in the development of that program. The data base for the model was derived from the results of extensive surveys to battalion level commanders and trainers in the field to provide a "best available" answer to how much training is enough and what kind of training should be conducted to ensure a high degree of training readiness. The model considers the effects of training distractors (personnel not

BATTALION TRAINING MODEL

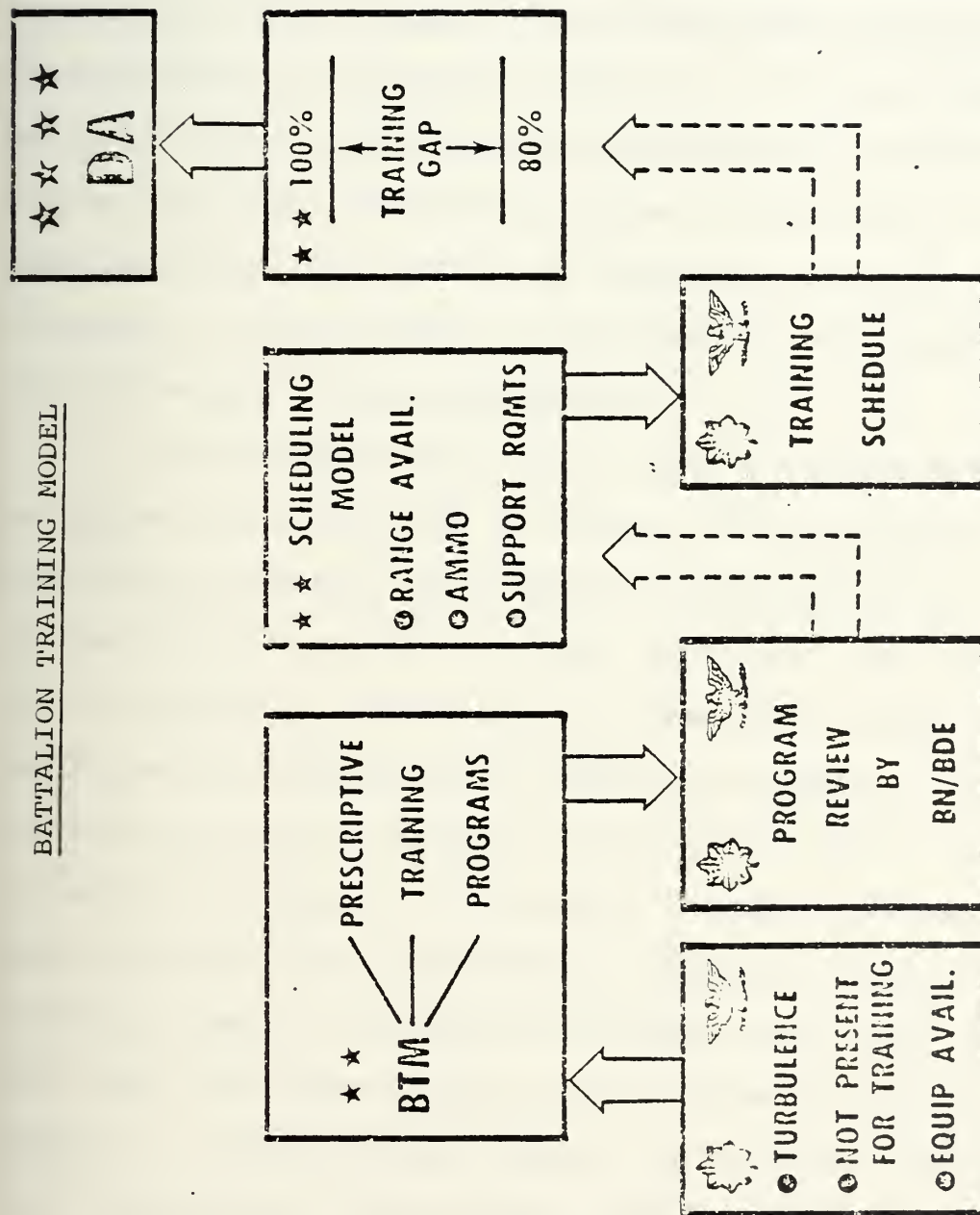


FIGURE 3-5

present for training, turbulence, and senior grade substitution) and constraints (dollars, time). The model is currently configured as a linear goal program consisting of 100 objectives and 78 decision variables. It has been loaded and run on both CDC 6600 and IBM 360-370 mainframe computers. The final product of the model results in a training program in which individual and collective tasks have been fully integrated with ARTEP oriented missions to establish not only what training events should be conducted, but also the frequency of those events as influenced by the commander's priorities and various constraints.

At division/installation level a typical scenario envisions the development of optimal training programs by the BTM for maneuver and selected Combat Support battalions in the division tailored to their particular needs and subject to approval of the division commander. These programs would then be entered into a scheduling module of the BTM which would optimize across all battalions based on training resource constraints. The initial program would establish what the battalions individually required to attain a given readiness level. The scheduling module would show the best that each could attain given the resources available to the mission. The differences between the two would represent the "training gap" being bought with the resources provided.

2. Current Status/Fielding Projection

BTM has recently moved into its testing stage.

The system has been successfully loaded and tested on the IBM 360 computer at Fort Monroe, Virginia. There are currently two training program packages available, a mechanized infantry program and an armor program. These two programs were developed under contract to Actuarial Research Corporation in August 1980. No effort, as of now, has been initiated to expand the model beyond the two listed versions. However, work could begin on other versions should funds be made available and the option appear desirable. The scheduling algorithm contract, let in August 1980 to the University of Pennsylvania, was completed in July 1981. Completion of the scheduling software marked an end to the initial design work of the system.

BTM has identified its cost data in the model as being weak and requiring validation. Initially, it was envisioned that the common costing methodology being developed by TMCS would provide validated cost data which could replace the old data in the model. However, due to procurement difficulties experienced by TMCS, useful cost data are not readily available. Without useful cost data, BTM cannot provide meaningful resource management projections.

Should a source of valid cost data be developed, the mechanized infantry and armor versions of BTM, along with a scheduling module, should be ready for field testing in

late 1981. The results of a field test will prove useful in determining if, and if so, how, the system will be fielded Army-wide. BTM hopes to provide the tool necessary to develop prescriptive training programs under the Army's Standardization Program as well as provide budget justification for unit training.

3. Benefits

BTM, like TMCS, is another new concept proposed for planning and programming of training resources in the Army. Its introduction would also use computers to aid in decision making, but unlike TMCS which requires new computer hardware purchases, BTM proposes to use existing installation computer facilities. BTM requires only new software programs for existing computer hardware, saving the expense of new equipment and need for training personnel on new computer systems. Some benefits associated with BTM are:

a. Realistic Training Plans

BTM will provide commanders with a general training program as a guide, developed specifically for each type of battalion sized unit (infantry, armor, or artillery). The program is stored in the system, capable of being tailored, changed, or deleted completely as deemed appropriate by each commander. The standard program provides commanders with a common starting point with which to develop each unit's customized training program.

b. Coordinated Scheduling for Training

BTM provides an added dimension to realistic training plan development. It conducts a scheduling review of all unit programs against known installation facilities and resource constraints. BTM arbitrates scheduled training conflicts for units and produces an installation master training schedule. This added dimension should help simplify the current manual scheduling process conducted by division and installation operations sections (G-3's).

c. Valid Training Costs

BTM has the potential for providing valid training cost estimates for budget submissions and resource management during the budget execution phase. Training costs would be identified in three major categories--field, range, or garrison training days. These categories should give Congressional and Army planners a clearer picture as to how training resources are used and allocated. BTM should provide an improvement over current practices of defining activities in the general category of a "battalion training day."

d. Valid Ammunition and Fuel Estimates

BTM should be able to retain historical data on ammunition and fuel expenditures for specific types of training activities. The high cost associated with these two resources demand that BTM provide valid estimates. By monitoring resource expenditures against projected training

activities, commanders should be able to identify overages or shortfalls in resources and adjust training accordingly.

e. Computer Capability and Costs

BTM uses existing computer facilities on each installation. Its successful test on an IBM 360 mainframe computer allows for procurement of only additional software to implement BTM. Consequently, BTM enjoys the enhanced operational capability provided by computer operations, yet does not incur new hardware costs or personnel retraining demands. BTM should save numerous manhours by simplifying the current time-consuming process of resource allocation and improve cost estimate accuracy.

4. Areas of Concern

The Battalion Training Model recognized the importance of elevating responsibility for management of training resources to the division/installation level. Although BTM removes many unit oriented tasks that TMCS requires, it also requires resolution of specific system shortcomings. The areas of concern that BTM still must address are:

a. The model does not contain an internal cost collection format. Activity costs must be determined separately and input into the model's program. Essentially, BTM does not contain this extremely vital methodology and must obtain activity costs from an external source.

b. BTM is currently applicable only to mechanized infantry and armor battalions. Programs for all battalions

would be required for the system to serve as a basis for training fund allocations. At this time it has not been determined if these other unit programs can be prepared, or if they will accurately project all unit costs and activities.

c. Timely access for users to the model is questionable. Installation computers already perform numerous operations. Timely input procedures and output returns are marginal at best for existing computer operations. During the planning process, units will need quick and easy system access when examining multiple training alternatives. If not, needless time will be wasted and user confidence in and tolerance for the system will surely diminish. In the next chapter a battalion and division control system is developed as an alternative approach to overcome some of the disadvantages addressed concerning TMCS and BTM.

IV. PROPOSED TRAINING RESOURCE MANAGEMENT MODEL

A. GENERAL

Demand for efficient and effective management of training resources is expanding battalion-sized unit participation in BTMS preparation. One new area of involvement that battalion commands must now address is the realm of financial management of training resources. Requirements are now slowly forcing units to conduct and provide detailed financial projections and analysis to use or support requests for needed training resources. Unfortunately, no standardized methodology or identified staff functioning at battalion level exists to habitually collect, correlate, and retain historical activity data for valid cost projections. Often one staff member of the unit, the battalion executive officer or a junior staff officer, inherits this expanded duty and struggles to establish and operate the program to provide timely, accurate information. Simply stated, most battalions have neither skilled financial personnel nor implemented internal controls to adequately contend with this new demand.

True, battalion information normally is exchanged or submitted in scheduled reports (TUFMIS, fuel usage, and training ammunition expenditures) to division level staffs. As individual reports, each fails to provide a complete picture of all associated resource expenditures to conducted activities.

Each staff at battalion and division level functions in its own defined realm of personnel, unit operations, or logistic concern. Rarely do these staff reports capture data even by common time interval or organizational level. Examples are fuel usage reports retained by battalions on a monthly period, while TUFMIS computer listings return data by company/battery/troop on a weekly period. Some reports capture data Monday-Friday only, while others may be Friday-Thursday inclusive. Most lag in time and accuracy due to undefined, vague, or unenforced guidelines established within the organization. Finally, command emphasis and priority dictate the validity of any gathered data. If a command perceives that some type of information is essential, sufficient time and effort will be provided to obtain it. If not, or if the information is given priority at the next demanded input interval, the information may be worthless or more expensive in time and resources than it costs to gather. With readily accessible and timely information, battalions might better contend with the numerous short-notice decisions they face daily. Unfortunately, battalions find their data accumulation and processing techniques are not adequate and responsive to conduct the fiscal reviews or analysis now being demanded.

So how can battalions contend with their expanding role in the financial management of training resources? As pictured today, the battalion's role must first be standardized and defined within each division. Division commanders might

establish a policy where resources become centrally controlled at division level, but monitored at each command level. Establishment of a common fiscal control system at battalion and division level would be required. The control system could be tailored to address particular unit needs, concerns, and personalities of each division command. With many Army fiscal procedures consuming large volumes of time and resources to support operations with questionable results, individual internal control systems for battalions and divisions can be developed to address this concern.

In the remainder of this chapter, a battalion control system will be developed as a simple system which can interface with a division system. An expanded system for battalions is also discussed should the supporting division system not be implemented, or demands continue to dictate that battalions provide detailed budget forecasting information to higher headquarters. Finally, a division fiscal control system will be developed along with a discussion as to how it might interface with budget forecasting requirements at higher headquarters. The proposed systems are oriented to a theme of central planning/control (at division) with decentralized execution/expenditure authority of training resources (at battalions). Hopefully these proposed system formats will identify, aid, and educate personnel in simple financial procedures to support training resource management.

B. AN INTERNAL CONTROL SYSTEM

The approved operating budget of a battalion, consisting both of planned expenses and expected outputs, is the principal financial guideline for operations. It dictates the nature and content of a unit's training program. Presumably, a command wants the unit to operate in a way that is consistent with this plan, unless there is a good reason to depart from it. This qualification is important, for it means that the control process is necessarily more complicated than simply insisting that the organization do what the training program prescribes. The purpose of an internal control system is to assure that activities are accomplished effectively and efficiently. If, because of changed conditions, a different course of action or activity than was initially planned will improve unit readiness, then that activity should be performed if feasible within available resources. Thus, the control system should have two aspects: (1) it should assure that in the absence of reasons to do otherwise the training plan set forth is adhered to, and (2) it should provide a way of changing the plan if conditions warrant. [Ref. 5, p. 437]

1. A Battalion Control System

A battalion control system should provide a quick, simple reference to associate costs with training activities. The system must allow for the monitoring of expenditures of training resources in dollars, types of fuels, and kinds of ammunition. Maintaining current aggregate totals of

expenditures during established reporting cycles ensures that checks are available on external unit accounting records and procedures. It also provides the critical monitoring of internal resource usages within approved resource ceilings.

One fiscal control system which might give a battalion command a simple methodology to capture costs with associated training is seen formatted in Figure 4-1. The system requires the retention of historical data generated within the unit, captured and retained on a weekly basis. Figure 4-2 illustrates how battalion training activities are listed on the calendar diagram while expended resources are entered in listed columns below. The training activities listed can be any activity the command prefers. However, it is recommended that only field operations, range firing exercises, or extraordinary activities (like REFORGER, Fort Drum, or JCS exercises) be identified. All forms of training activities, regardless of category, conducted in or around the confines of the battalion billet area, should be considered garrison or force sustainment training and not listed on the document calendar. Garrison activities, now displayed as blank calendar periods, become fixed, training day costs while listed activities become variable costs. Non-training days such as weekends, national holidays, and unit training holidays are identified with an "N" so as to not dilute the fixed garrison day cost. Since training was not conducted on these

MAJOR TRAINING ACTIVITY CALENDAR

UNIT _____ WEEK OF _____

S	M	T	W	T	F	S

N: Non Training Day

<u>UNIT</u>	<u>FUEL</u> (M/D gal)	<u>CL IX</u> (\$)	<u>AMMO</u> (*)	<u>OTHER</u> (\$)
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

* A Battalion/Division Munition Code

FIGURE 4-1

MAJOR TRAINING ACTIVITY CALENDAR

UNIT 1-1 Inf

WEEK OF 1 Sep- 12 Oct 8x

	S	M	T	W	T	F	S
1-7	----- DIV FTX -----						N
8-14	N		(1/4) M16 Qual				N
15-21	N						N
22-28	N						N
29-5	N	-----	(1/4)	ARTEP-----			N
6-12	N					N	N

N: Non Training Day

	UNIT	FUEL (M/D gal)		CL IX (\$)	AMMO (*)	OTHER (\$)
1-7	<u>1-1 Inf</u>	<u>804</u>	<u>490</u>	<u>1934</u>	<u>4k-B,6-F</u> <u>12k-D,8-E</u>	<u>668</u>
8-14	<u>"</u>	<u>20</u>	<u>40</u>	<u>1692</u>	<u>1260-A</u> <u>3400-C</u>	<u>561</u>
15-21	<u>"</u>	<u>50</u>	<u>0</u>	<u>1791</u>	<u>0</u>	<u>700</u>
22-28	<u>"</u>	<u>40</u>	<u>85</u>	<u>827</u>	<u>0</u>	<u>2044</u>
29-5	<u>"</u>	<u>200</u>	<u>125</u>	<u>1400</u>	<u>10000-A</u> <u>2000-C</u>	<u>243</u>
6-12	<u>"</u>	<u>45</u>	<u>90</u>	<u>1052</u>	<u>0</u>	<u>1250</u>

* A Battalion/Division Munition Code

FIGURE 4-2

non-training days, training costs should not be apportioned to them.³

The critical associated costs to be collected for the conducted training activities, as shown in Figure 4-2, are repair parts (class 9--in dollars), fuel (mogas and diesel--in gallons), ammunition (type ammunition--by round), and other expenses (SSSC accounts and any other relevant expenditure specific to a command--in dollars). These costs constitute the relevant training resources expended by a unit and will be categorized as first echelon costs. First echelon costs are the unit expenditures required to support only internal battalion generated and directed activities.

Although it should be understood that ammunition is allocated as a separate item since ammunition expenditures are controlled by availability and Army ammunition policies, battalion expenditures are retained to serve as ready reminders of ammunition requirements expended on a training activity.⁴ Some minor adjustments by trading types of rounds for another can be accomplished; however, ammunition

³Training activities do not always involve all of a battalion's assets. On these occasions, only that portion of the battalion conducting the listed activity should be noted (i.e., a company operation may be a 1/4 battalion operation). Use of the battalion equivalent (BE) definition in Chapter II would be appropriate. Those battalion assets not listed are understood to be conducting garrison operations.

⁴If the battalion system is providing input data to a larger division system, ammunition expenditures will undoubtedly need to be retained and reported as the other unit resource expenditures.

funding is accomplished separately from training funding. Training funds cannot be used to purchase more munitions, because expenditures are regulated by comparisons of stockage level requirements with quantities produced. Thus, repair parts, fuel, and extraordinary expenditures constitute the relevant costs to be collected for the control system, while ammunition expenditures are normally retained only for internal battalion planning purposes.

Expanding the simple formatted control system described in Figure 4-2, pertinent historical data can be captured not only at battalion level but also at company level. Figure 4-3 illustrates how a battalion can format its data collection at company, battery, and troop level. The company model uses one formatted sheet for each week of data collection, where the battalion format captures up to six weeks of data per sheet. Either format will produce the same battalion costing information. Using the company collection format, battalions are afforded the opportunity to identify costs closer to specific multi-leveled activities (platoon, company, or battalion). Rarely will all activities conducted utilize an entire battalion. Most training activities are scheduled and conducted as platoon or company operations. Consequently, the company format (Figure 4-3) provides better targeted costing data to multi-leveled activities and introduces battalion fiscal management to the company leadership. This serves as an education forum for junior officers in fiscal management by illustrating

MAJOR TRAINING ACTIVITY CALENDAR

UNIT 1-1 Inf WEEK OF 1-7 Jan 8x

	S	M	T	W	T	F	S
HQ		BN FTX-----					N
A		BN FTX-----					N
B		BN FTX-----					N
C	N						N
CS		BN FTX-----					N

N: Non Training Day

<u>UNIT</u>	<u>FUEL (M/D gal)</u>		<u>CL IX (\$)</u>	<u>AMMO (*)</u>	<u>OTHER (\$)</u>
<u>HQ</u>	165	330	1169	400-B	
<u>A</u>	96	65	0	1400-B	
<u>B</u>	52	35	109	900-B, 8-E	
<u>C</u>	0	0	138	0	
<u>CS</u>	481	60	417	13k-B 12k-D, 6-F	
<u>Tot</u>	804	490	1834	4k-B, 6-F 12k-D, 8-E	668

* A Battalion/Division Munition Code

FIGURE 4-3

that every activity, simple or complex, requires and expends the battalion's finite resources. It further provides historical costing estimates at the company level should the command find this information and involvement useful. However, it is important to limit entries to only those of command interest, not every entry on a unit training schedule.⁵

This simple format of an internal fiscal control system does little more at battalion level than provide a standardized collection procedure so that at a glance one can see what costs generally follow activities conducted. It provides an opportunity to retain weekly expenditures based on weekly activities, and affords data collection to maintain total expenditures of resources over time and provide comparison with established resource ceilings. This is accomplished by monitoring resource consumptions using a diagram as in Figure 4-4. By charting the expenditures of a resource over the fiscal year, a battalion can better visualize and regulate expenditures toward its resource ceilings. Based upon the command's knowledge of upcoming training activities, resource allocations and adjustments can be better managed.

⁵ The company collection format should be easier for personnel to list and describe than battalion assets conducting training activities. The calendar entries are simple, and personnel need not worry about computing battalion fractions. Transcribing listed activities to battalion equivalents (BE) would be accomplished only if the data were to be analyzed at division.

RESOURCE CONSUMPTION CHART

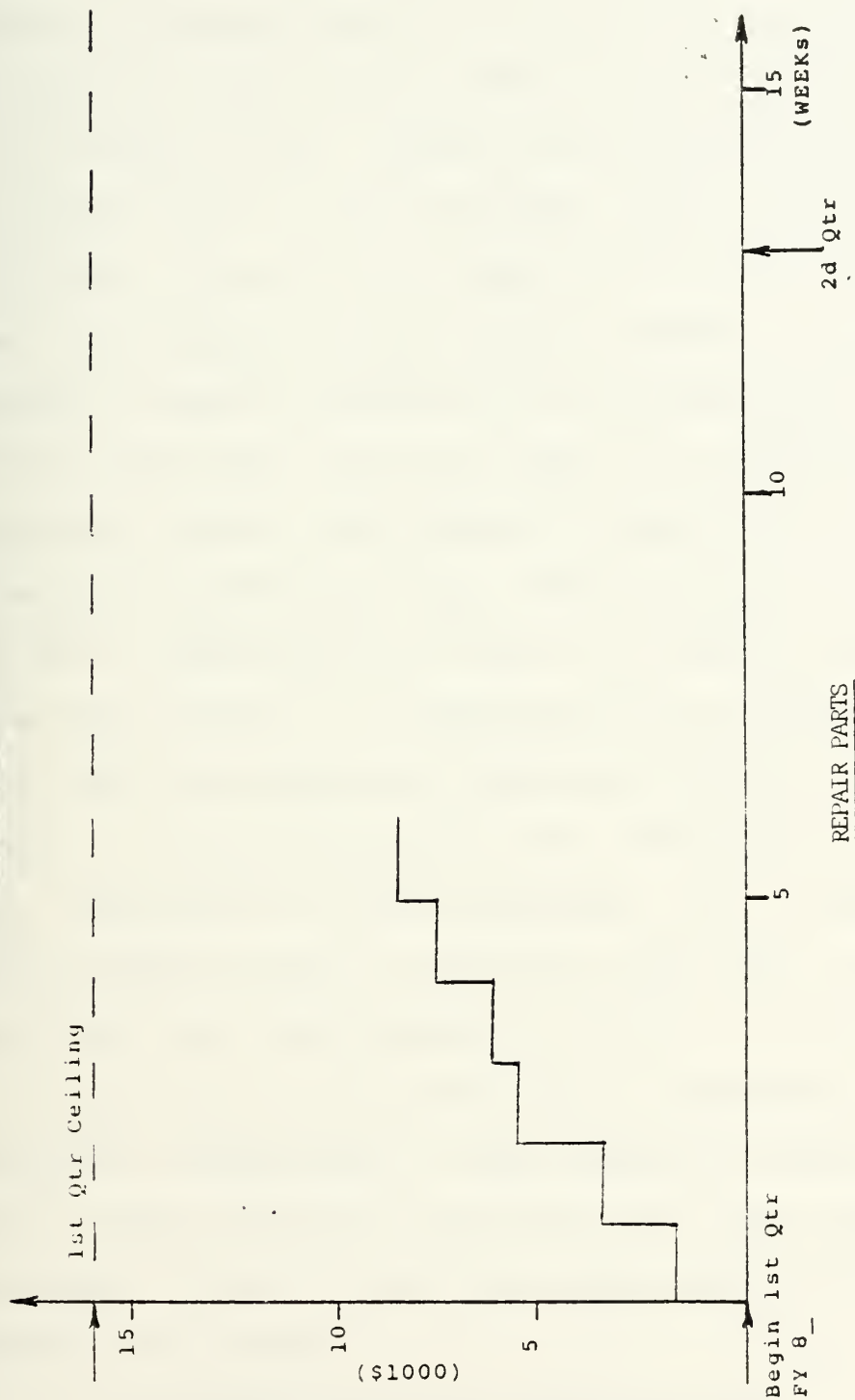


FIGURE 4-4

The control system proposed obviously does not provide exact detailed costing for each activity conducted. The proposed format can only hope to serve as a limited aid. It is intended to be a system providing gross costing figures for a quick look or "rule of thumb" analysis to cost training activities. Also, it is to serve as the data collection model for a larger division control system. A historical document of weekly battalion costs matched with significant training activities can be an asset for monitoring budget execution. However, the battalion format fails to account for specific expenditure lags, may not capture all information due to administrative errors, or identify all costs to a specific activity. To become more activity-specific, additional detailed analytical techniques would be required. Normally, division system personnel would provide this support. Regardless of these procedures, the outlined fiscal control system serves to establish some format to collect historical costs simultaneously with unit training activities. If it aids units by providing only an organized record of accumulated expenditures to help answer the short term questions on those resource allocations each unit continually encounters, it may be worth the time needed to develop and implement the system.

2. An Expanded Battalion Control System

Since many divisions have not established an adequate internal fiscal control system to manage their training

resources, battalions may be required to develop their own activity-specific cost estimates. These cost estimates can be developed by utilizing an additional analytical technique with the same data generated by the above simple system. This analysis technique need only be used if the division does not provide costing services or a battalion chooses to verify division costing projections.

As described earlier, fixed costs (garrison days) and variable costs (field, range, or extraordinary activity days) must be determined. Figure 4-5 illustrates a technique which may help improve the identification of a unit's fixed and variable costs. The diagram lists all calendar activities from the data sheets (Figure 4-2 or 4-3) across the time axis. The weekly resource expenditures are displayed along the dollar axis. Garrison day costs are determined by averaging all garrison day costs over the total garrison days performed during the time interval concerned. In Figure 4-5 the average garrison day costs would be:

EXAMPLE

<u>Week</u>	<u>Week's Total Expenditure</u>	<u>Garrison Day Expenditure</u>	<u>÷</u>	<u>Garrison Day</u>
1	1834	917	÷	3
2	1692	1692	÷	5
3	1791	1791	÷	5
4	827	827	÷	5
5	1400	3/4 (1120) + 280	÷	5
6	1052	<u>1052</u>	÷	<u>4</u>
		7399	÷	27 = <u>\$274</u> <u>per day</u>

REPAIR PARTS

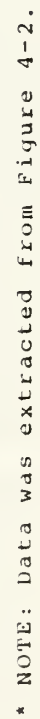


FIGURE 4-5

Specific activity costs are determined using the same technique as the garrison costs. Yet the activity costs often require more intuitive interpretation to determine true associated costs. Cost interpretation may be required since units rarely process all activity expenditures during the period the activity was conducted. Repair part expenditures usually are low during field operations because equipment may not be inspected in as great a detail or as regularly as in garrison. Often expenditures are not processed until the training activity is completed and after the unit has returned to garrison. If these costs are not adjusted as a specific activity expense but left as a garrison expense, neither the activity nor garrison cost estimates will be accurate. Large cost fluctuations displayed prior to or following listed activities may include some of the specific training activity's costs. Knowledge of a unit's operating procedures is required to determine whether the costs incurred prior to an activity (costs shown on the calendar as garrison day costs) are fixed or variable costs. Only direct costs associated to the specific activity should be removed from consideration as garrison costs. Costs generated to upgrade the unit to normal operational standards prior to undertaking a major training activity are fixed costs which would normally be incurred even without any upcoming activity.

Fuel consumption generally follows the true activity time periods and becomes a good indicator of the level of

training activities conducted. Fuel is a good indicator because the more you train the more fuel you consume. Consequently, fuel, being an expensive, finite battalion resource, often dictates the activity level of a battalion's training program. During field operations, however, unit record keeping can decay with sloppy issue procedures. Adequate issue controls are imperative to ensure fuel projections provided by the analysis will be meaningful.

Specific activity cost analysis must recognize these "operational truths" and adjust the cost estimates accordingly. As a result, interpretation of unit operations is an important factor to consider to ensure valid cost projections are generated from the cost data. Yet, it is important to remind the reader that the validity of any cost projection hinges on two factors. First, the collected data must be as complete and accurate as possible. Second, the validity and accuracy of the cost projections are subject to change and numerical refinement as more data are obtained over time. As more data are collected and included in the data base, confidence in cost estimates should improve.

The issue at this stage is how does one record and organize the collected data and cost projections as time progresses. The heart of this system is the standardized collection model (Figure 4-1). It provides a format to accurately and habitually collect historical unit cost data. Any prolonged break in the collection process would diminish the

cost averaging concept which supports the costing projections. Event record cards or form papers on each variable cost (activity) can be kept in a simple recipe book format at division level. An example event record card is shown in Figure 4-6. Battalions should continue to maintain expenditure graphs (Figure 4-4) to monitor gross resource expenditures as training activities are conducted and resources are consumed. A small binder or folder can easily maintain all battalion records. The battalion executive officer or operations officer can supervise and maintain this information for the command.

This additional technique does provide an improvement over the initial simple control system. The expanded format has the same strengths noted for the simple system, yet it now helps to improve specific activity costing. It presents an acceptable estimate for cost data generated at battalion level without requiring additional personnel or equipment. However, this system will require general mathematical skills and knowledge of analytical techniques by the unit personnel supervising it. Expenditures still may have limited validity due to processing lags. The major concern remains that battalions may not habitually have the skilled personnel or time to handle this added detailed work. Battalion and company time is very limited by present demands placed upon them. Direction by higher headquarters or regulations normally dictate most of a unit's time. It is not

COST/EVENT RECORD CARD

FIXED COSTS

FTX VARIABLE COSTS

ARTEP VARIABLE COSTS

FUEL (gal)

FUEL (gal) AMMUNITION (rd)

FUEL (gal) AMMUNITION (rd)

FUEL (

OTHER \$
AVN
DIESEL
MOGAS
RPs \$

OTHER \$
155/Dragon
105/TOW
LAW
7.62B
7.62
5.56B
5.56
AVN
DIESEL
MOGAS
RPs \$

OTHER \$
155/Dragon
105/TOW
LAW
7.62B
7.62
5.56B
5.56
AVN
DIESEL
MOGAS
RPs \$

DIESEL
MOGAS
RPs \$

TYPE UNIT

INF

AR

ARTY

SEP EN

SEP EN

SEP BN

SEP EN

SEP CO

SEP CO

SEP CO

FIGURE 4-6

hard to envision new personnel or equipment requests being initiated to aid each battalion contending with this fiscal management. Any new personnel or equipment will become new expenses to be added, and probably divert present battalion resources away from current operations. With resource allocation controlled at division level, any detailed costing requirements should be done at that same level. A division can staff itself more easily than a battalion. However, if the battalions are required to perform detailed fiscal analysis, hopefully the discussed control system will provide a starting point and approach to undertake the requirement.

3. The Division Level Control System

a. System Overview

The division fiscal control system to be presented supports a theme of central planning conducted at division level with decentralized execution conducted at battalion level. Since the majority of a battalion's activities are directed by higher headquarters, costing for these activities naturally may become dictated outside the battalion's control. This proposed division fiscal control system is based upon a division command structure controlling allocation of all battalion resources dedicated to its training activities, freeing battalions to concentrate on executing proficient training activities. The system directs the division staffs to develop the detailed fiscal information as shown in Figure 4-5 with battalions providing

data inputs.⁶ Divisions would also be responsible for maintaining the event record cards for each subordinate battalion.⁷ Consequently, each level of the command structure remains involved in fiscal management, but the division becomes the responsible level of fiscal review, not the battalion.

To undertake responsibility for central planning the division must begin by improving control of the training resources it allocates to its subordinate battalions. Many divisions provide their battalions with training guidance as to what activities they can expect to conduct during a specific period. This guidance usually occurs in annual and quarterly training directives from the division commander. Major training activities are normally identified, assigned, and scheduled to aid early battalion planning. BTMS is utilized by the battalion to fill out individual training programs with divisions allowing initial battalion activity scheduling. Within the system, divisions initially schedule all known major activities to include range access for firing training ammunition. Battalions complete their training programs and schedule their remaining training activities using BTMS

⁶ Ammunition expenditures need not be monitored to each specific activity unless directed by the division system. Command interest probably would be in the totals of types of munitions expended.

⁷ Automated equipment, like a minicomputer in the division G-3 section, would certainly enhance record keeping and analysis.

procedures to accomplish battalion training objectives. Later, scheduling adjustments are performed at division level.

Currently, few division commands require detailed costing analysis to be accomplished by battalions during their BTMS planning and programming process. Often training activities are planned, programmed, and approved based only on a perceived impact upon a unit's readiness posture. Resource expenditures are usually estimated by a "best guess" or "seat of the pants" methodology. Under the proposed system the division would collect and review training activity expenditures by type of battalion so that valid estimates of costs and resource expenditures can be made. With these estimates, initial training guidance to battalions would reflect designated training activities with associated costs, range access periods, and the division commander's training philosophy and guidance. Another major addition in the training guidance directive would be target ceiling figures for repair parts, fuel, and ammunition expenditures. The target figures, along with designated training activity costs, allow battalions to determine what costs and resources they can program to support battalion-generated training activities. Costing for battalion planned activities could come from the data files at division or from the battalion's own internal fiscal system files. Once each battalion is allocated its approved resource ceilings for the new fiscal year, adjustments for over or under expenditures can be addressed.

The proposed division control system begins by addressing how resources (dollars, fuel, ammunition) are provided to its subordinate commands. The division begins with a master training schedule as illustrated in Figure 4-7. Known battalion activities (#) are assigned on the schedule. These activities are directed or generated by non-battalion commands. Examples might be division field exercises, division evaluated battalion ARTEP's, REFORGER exercises, national training center exercises, and Department of Army training requirements like weapon qualifications or reverse cycle training (night training). The initial unassigned training periods constitute battalion-designated training periods. Battalions would develop their training programs to complete the master training schedule using BTMS procedures supplemented with fiscal information which recognizes resource costs for each planned major training activity.⁸ An important point to recognize is that the system can support a division philosophy which may desire to dictate large portions of training time to its units or allow maximum training time for battalion-generated activities. The key remains prior identification of training activity costs. The system enables costing information to accompany the planning process and follow the activity into execution.

⁸ Divisions could schedule battalion BTMS workshops and routine access to the division data files to preclude conflicts.

DIVISION MASTER TRAINING SCHEDULE

FY 8 _

UNITS	O	H	D	J	F	M	A	J	J	A	S
1-1	#	#		#	#	#		#		#	
1st 2-1	##	#		###	###						##
Bde 3-1	#			###	##		###	##		###	
1-2			##			##			#		
2d 2-2	#			##			##			##	##
Bde 3-2	##	#			##			###			
1-3			##						##		
3rd 2-3		##		#		#				##	
Bde 3-3	##		##		##					##	
1-4				##							##
Div 2-4		#			##	##					##
Arty 3-4			##		#		##			##	##
1-5	#			##		##					
2-5				##						##	##
DISCOM 3-5		##							##	##	
4-5				##					##	##	
1-6		##					##				##
Sep 2-6			#							##	
Bn/Co 3-6	#			###						##	
4-6		##			#		##		##		#

FIGURE 4-7

How the division creates the cost data necessary to support this system becomes a critical process. A method to develop initial cost data for the system, absent any established cost records, is to conduct an extensive review of on-hand unit records. One should go back at least two years to ensure a reasonable data base is developed so fixed (garrison costs) and variable (designated training activities) costs can be determined. The data can be generated from TUFMIS computer printouts, fuel usage records, and field training reports (after action reports) to establish initial cost figures for the fixed and variable costs. Using a required data input model as in Figure 4-2 or 4-3, future training activity costs can be used to refine and update the initial activity cost estimates. The key resource expenditures to be monitored remain repair parts in dollars, fuel by type of gallon, and any extraordinary costs in dollars like SSSC accounts or other command specific training funds costs. These are the principal resources expended to support battalion training activities.

An operating example of the proposed division internal control system is found in the 25th Infantry Division, Scholfield Barracks, Hawaii. Division personnel have found the system to be a significant aid in improving training resource management. The location of the 25th Infantry Division presented some additional training resource considerations and expenses which many units might not encounter, yet the

system was sufficiently flexible to adjust to these considerations. One such major consideration was having units stationed on one island with most training facilities and areas located on another island. This caused frequent large expenditures to be mixed in with normal garrison costs prior to undertaking training activities. Using the analytical technique described in Figure 4-5, costs were successfully isolated to their appropriate periods. The 25th Infantry Division system also used block training periods for unit range access and retained historical data by type of unit training activity to determine valid cost projections.

b. How Dollars are Monitored (Execution Phase)

The division may follow the execution phase of resource expenditures on a biweekly basis. As in the detailed battalion control system, actual resource expenditures (see Figure 4-4) would be plotted against time. Figure 4-8 illustrates how this monitoring of actual expenditures may be improved by adding projected resource expenditures developed after receipt of approved resource ceilings. Monitoring actual and projected resource expenditures provides a clear indication as to whether individual training activities are efficiently executed, and whether initial cost estimates are valid.⁹

⁹ This analysis and record keeping would be enhanced if the system is supported at division level with automated equipment (a minicomputer).

RESOURCE PROJECTIONS

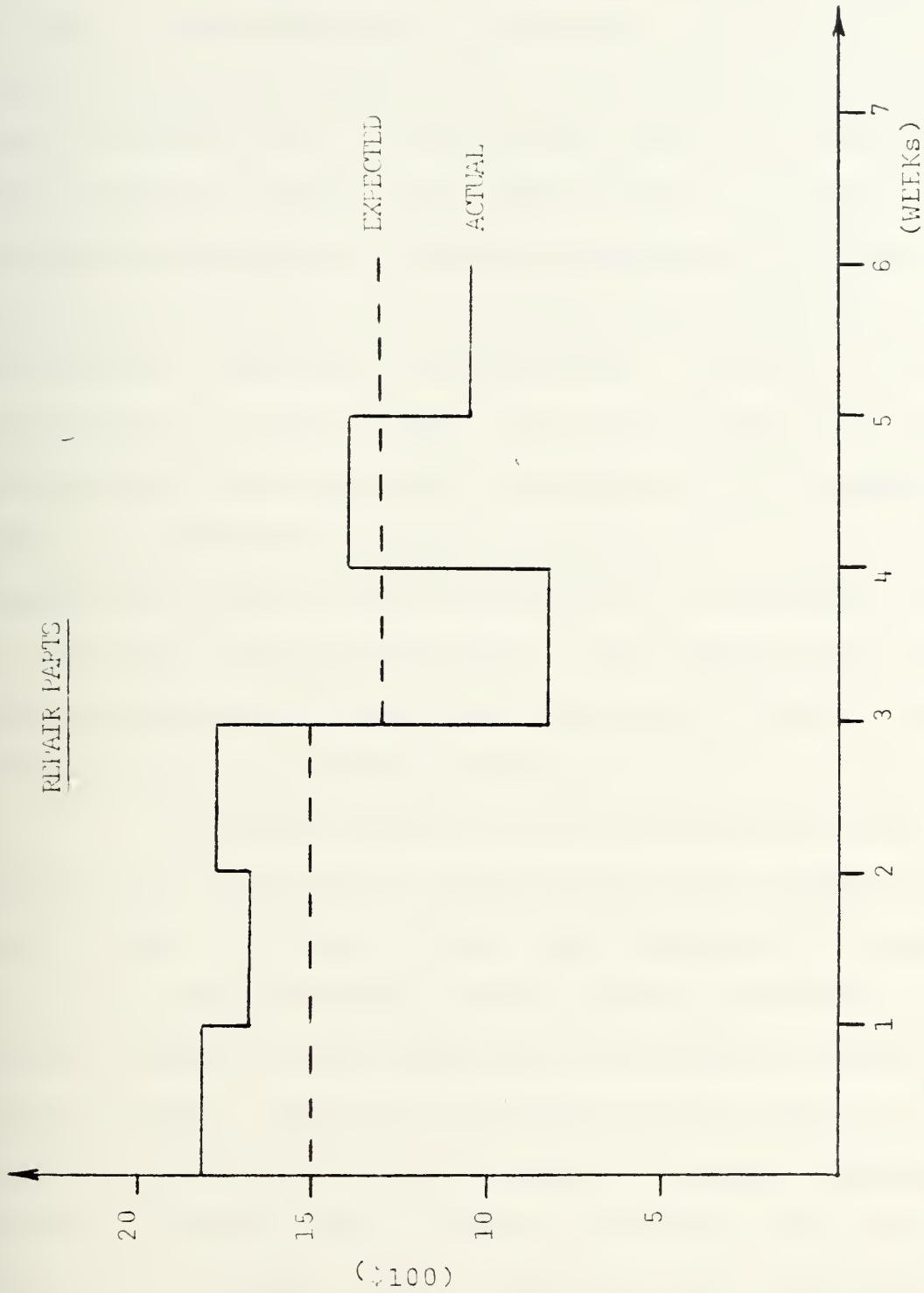


FIGURE 4-8

Orderly maintenance of the above information is critical to the usefulness of the system. Division personnel should maintain the record file or section of fiscal information on each battalion. The file can retain the battalion master training schedule and charts depicted in Figure 4-8 showing each battalion's resource expenditures. Separate master records showing division aggregate expenditures for each resource should also be maintained. Battalion inputs must continue to occur weekly, yet record updates and command review of unit files need only be conducted on a biweekly basis. The information should be presented to the division commander only after review and rebuttal by battalion, brigade, and assistant division commanders. This review ensures expenditures are known within the command and allows for early adjustment due to potential problems.

Two major issues surface at this point which reinforce the importance of implementing such a fiscal control system within a division. First, many designated training activities such as REFORGER, joint service exercises, and national training center operations are funded by several P2 Mission issues. These funds represent reimbursables to the division for many activities generated at higher commands. Capturing accurate costs is essential so these additional funds can be obtained. Units should not allow their principal training funds and resources to be depleted if accurate costing can provide additional authorized funding. Second, the

concept of conserving battalion resources is encouraged. A division resource reserve, composed of resources initially committed to battalions, should begin to develop. The continuous review encourages battalions to save since they will naturally attempt to maintain resource expenditures within projected estimates. The division can remove battalion commitment authority for designated resources as a surplus develops, but this action certainly ensures any savings will remain minimal. Further, reports may degenerate and poor communications may develop as battalions attempt to protect uncommitted resources. Another approach would be to establish a percentage (say, 10-20%) of any battalion savings which the division can reallocate if necessary. The remaining savings would always belong to the assigned battalion. The battalion incentive becomes authority to internally reallocate saved resources to new or additional training activities. Thus, savings would be encouraged but not contested by removing incentives.

A method used by some divisions to ensure that training resources are completely utilized at the end of a fiscal year is to schedule a final division exercise in early September. Instead of scheduling specific battalion resources to support an established division training activity, the exercise is tailored to utilize only remaining battalion resources. Adjustments and the level of participation are determined by the remaining resources of each battalion.

The exercise may vary from a complete division field exercise to selected unit participation, or to command group exercises (CPX's). Additional funds from the installation or MACOM could be requested if specific training benefits may be accomplished with limited additional funding. The key to this system is that resources are actively managed. Training activities are conducted according to resource availability, but the system retains an incentive for resource conservation.

To this point the discussion of all costing has addressed only first echelon costs, which are those costs generated directly by a unit in support of its own battalion activities. In a few units, those normally located in the division support command (DISCOM), costs are generated due to support demands created by non-parent battalion units. The division maintenance battalion, which receives work requests to fix vehicles for an infantry battalion, requires parts and manhours in addition to its own first echelon costs. These additional costs will be designated second echelon costs. Increased division training activity essentially increases division second echelon costs. The 25th Infantry Division found these costs followed a nearly linear relationship to total division fuel consumption. The more fuel used, the higher the second echelon costs, while lower fuel consumption lowers second echelon costs. The DISCOM units' first echelon cost figures were determined initially by using first echelon cost figures from like division units having

similar unit structures and training programs. These first echelon costs were subtracted from the units' historical total cost figures to produce its second echelon costs. These second echelon costs were proportioned to the total annual division fuel consumption to form the linear relationship. If such a relationship exists, second echelon costs could be managed by curtailing or increasing division fuel consumption at specific time intervals. This relationship provides a method to forecast these costs due to impending division activity levels. Second echelon costs associated with fuel consumption may not be the only method to address these costs. Whatever ratio or method selected, the control system must recognize these costs exist and plan for them in developing budgets for DISCOM units.

c. Division Budget Forecasting

Battalions would program their own training costs using estimates from either an internal fiscal control system or information from the divisional data base. The completed training schedule with an accompanying battalion budget is returned to division for adjustment and approval. Upon receipt of the newly approved commitment authority, the division allocates funds and resources to its battalions. Each battalion would review its planned schedule using the newly approved resource ceilings. Battalion training activities are adjusted as necessary. However, no designated activity can be amended without division approval. Typically, only battalion generated activities will require adjustment.

d. Who Becomes Responsible for the Division System?

The responsible agent for the management of training resources should be the division operations office (G-3). The division G-3 is responsible to the division commander for the operational control and training proficiency of units within the command. Since training resources support the accomplishment of division training, the fiscal management required for adequate resource management belongs in the same office. The division can establish a resource center to monitor the training resources of the division. Personnel tasking requirements, fuel, ammunition, range control, repair part costs, and training schedules would be the resources to be monitored. This section, staffed with appropriate operationally and financially skilled personnel, would maintain the division costing control system and prepare the command resource briefing files. The division G-3 section would develop and maintain the controls for resource management, freeing battalions to execute planned training activities.

C. BUDGET FORECASTING FOR HIGHER HEADQUARTERS

An important consideration for any fiscal control system implemented by a command is how it interfaces with budget forecasting requirements demanded each year. The proposed systems focus on small unit budget forecasting and resource expenditure. Equally as important as these two functions, the control system should support higher headquarters'

requests for budget information. As the battalion system supports the division system with needed data inputs, the division system should support installation and MACOM level budget submission requests. Interest does exist through the Army command structure, as well as in Congress, in associated costs to training activities. Past efforts have been to determine a measurement which illustrates Army efficiency and effectiveness in using provided resources.

The battalion training day is currently the control measure being utilized to establish resource management. It is a weak measurement, vague and ill defined, and fails to adequately represent training activities to any valid associated costs. The proposed division system refines the control measures to specific major training activities (variable costs) and garrison days (fixed costs), recognizing these activities are generally common to all Army units. Army headquarters or individual MACOM's could be given authority to determine and define the critical activities (variable costs) on which to record costs for budgetary submissions. Notable mission activities such as battalion ARTEP's, division command group exercises, joint service operations, brigade emergency deployment exercises, and battalion field exercises are but a few examples. Regardless, the training activities should be specific, identified, and defined, the number remaining less than ten. Too large of an activity sample creates micro management not necessary at this level.

Cost data supporting these activities should be in dollars, fuel consumption, and ammunition expenditures.

Installation garrison day costs could be compared across MACOM's while variable activity costs need to be closely examined to determine if they also have possible common cost relationships. This allows further analysis by costing designated activities across MACOM or Army commands. Care should be taken in examining these types of common costs for the duration of training activities conducted may significantly impact upon its associated costs. Three-day and twelve-day exercises may possibly have significantly different costs when averaged to a daily cost figure. A final benefit of the proposed control systems is the possible tie to the Battalion Training Model (BTM). If BTM proves to be useful, the division and battalion systems may serve as the cost data collection format requiring the variable costs collected to be the training activities monitored by BTM. As currently designed, BTM still requires cost data collected from some source external to the basic model.

Whatever Army command defines the training activity costs that are to be retained, it is imperative the battalion training day measurement be improved. A cost data base must be built by some form of internal fiscal control system, to retain and improve cost projections for planned training activities. Time remains the principle issue more than any one resource's availability or cost. Units have little time

to accomplish the numerous training activities now required and desired. Battalions should not have to accomplish detailed financial analyses. No command lower than division should perform detailed financial analyses. Battalions must be left to execute training; however, each should have a simple internal fiscal control system to submit data to the division system and for verification of division measurements. The proposed systems are intended to provide needed formats for divisions and battalions to accomplish fiscal management of their training resources.

V. FIELD TEST OF COSTING MODEL

A. INTRODUCTION

The purpose of this chapter is to describe the findings and observations from a limited field test of the costing model proposed in Chapter IV. The test was conducted with the aid of two light infantry battalions of the Seventh Infantry Division at Fort Ord, California. The two battalions volunteered to assist in the field test by providing their unit's historical data on a weekly basis during the period 2 August 1981 through 31 October 1981. Data input were made utilizing the format specified in Figure 4-1.

B. SPECIAL CONDITIONS

The field test conducted for the costing model encountered other than ideal conditions for testing purposes. Although specific conditions limited the results of the field test, the sample data generated still appeared to be useful in evaluating the operational characteristics of the costing model. The special conditions which did influence the test results were as follows:

1. The absence of mechanized infantry battalions at Fort Ord prevented direct data comparisons to the Battalion Training Model. Since one of the possible uses of the proposed model was as a costing methodology for BTM, the generated

sample data could not be immediately used for this purpose. Lacking mechanized infantry battalions at Fort Ord, two light infantry battalions were selected and tested instead. Unfortunately, the data generated from these two units were not completely characteristic of all operational light infantry battalions. This occurred because both units were currently participating in the Cohesion Operational Readiness Training (COHORT) program. This participation caused their daily personnel strengths during the test period to be only approximately 75 percent of their authorized strength levels.

2. Being only 91 days, the data collection period was insufficient to determine accurate cost estimates. Additionally, the data collected span two fiscal years, and are characteristic of the previously discussed end-of-year spending phenomena. Unit data were impacted by funding limitations and/or surpluses at the end of year FY 81, while new spending guidelines which began on 1 October 81 for FY 82 offered increased spending levels (ceilings) for the new fiscal year. As a result, only questionable confidence can be placed in the accuracy of the cost figures obtained.

3. During the test period, units conducted only one variable training activity that could be costed (battalion FTX). A longer test period would be needed to observe unit training in other variable activities.

C. DISCUSSION OF TEST RESULTS

The sample cost data collected for each battalion is presented as follows:¹⁰

1. Major Training Activity Calendars
 - a. Battalion A: Figures 5-1 to 5-3
 - b. Battalion B: Figures 5-10 to 5-12
2. Resource Consumption Charts
 - a. Battalion A: Figures 5-4 to 5-6
 - b. Battalion B: Figures 5-13 to 5-15
3. Unit Average Cost Diagrams
 - a. Battalion A: Figures 5-7 to 5-9
 - b. Battalion B: Figures 5-16 to 5-18
4. Computed Unit Cost Factors

Figure 5-19 illustrates the cost factors generated for the tested battalions on a cost/event record card. Due to the short period of evaluating the unit costs to specific training activities, only a garrison cost (fixed cost) and a battalion FTX cost (variable cost) could be determined.

D. COMMENTS AND OBSERVATIONS

The following comments and observations describe the findings from the limited field test of the proposed costing model:

¹⁰ Sample data are presented as an example quarter period for a fiscal year.

1. Review of the cost figures generated from the field test illustrates wide cost variances between the two units. This occurs due to the short period of data collection, spending disruptions due to the end of one fiscal year and the beginning of another, and the activity levels conducted by each battalion. The activity level of Battalion A was 53 garrison days, 16 FTX days, and 22 non-training days. Battalion B used 64 garrison days, 3 FTX days, and 24 non-training days. The small sample of FTX days in Battalion B is not sufficient to accurately project valid cost figures and further explains the variances between the two units.

2. The impact of repair part costs attributable to a previous major training event is illustrated in Figure 5-16 for Battalion B. Within this sample size a more realistic repair part cost for garrison and field training days was determined by eliminating the large expense fluctuations and costing only the first six weeks of steady expenditures. This small subset shows steady weekly expenditures occurring during garrison days with large expenditures resulting after the unit FTX. These larger following costs are apparently attributable to the FTX. Using the first four weeks as a baseline garrison expense, and the follow-on increases over this baseline in the next two weeks as the FTX expense, the new repair part cost figures would be:

Garrison	- \$358.60 per day
FTX	- \$1559. per day

These first few weeks appear to represent normal expenditure rates, while the following weeks appear influenced by end-of-year spending.

3. Another observation that was made centers on the category of costs labeled "Other (\$)." These costs were composed of unit Self Service Supply Center (SSSC) costs and Class 2 and 4 monies. Although Class 2 and 4 monies originate from Procurement and P2 Base Operations funds, and not P2 Mission funds, they should be costed to provide a clear picture of total unit expenditures. The Class 2 and 4 expenditures were so large in relation to the SSSC expenditures that the SSSC costs had little effect upon the weekly aggregate expense. It appears unnecessary to isolate these "Other (\$)'s" into both fixed and variable expenditures. These expenditures normally are not realized until a unit commander authorizes each one, often not specific to any unit activity. Since Class 2 and 4 monies support replacement of both installation and organizational property, isolation of costs to a fixed and variable cost would be difficult. As a result, these "Other (\$)'s" could be expensed only as a fixed cost. All variable training days would be combined with normal garrison days to determine the fixed cost. Example costs for the tested units would be:

Battalion A: $\$24,639 / 69 \text{ days} = \357.10 per day

Battalion B: $\$18,578 / 67 \text{ days} = \277.20 per day

Thus, the Other (\$) expenditures reflect a large amount of money that may not be adequately costed to specific training activities. These costs can still be determined on a fixed cost basis, but it further illustrates some of the difficulty in costing all expenses to training activities.

4. The model displayed that fuel expenditures closely follow conducted training activities, but also illustrated that any weak measurement control of the resources expended within a unit quickly would impair the validity of any generated cost figures. At present, the repair part costs need to be collected from weekly Prescribed Load Lists (PLL's) instead of the computer listings provided by a division TUFMIS account. The unit PLL records improved the identification of cost expenditures to the period of activity better than TUFMIS could provide. TUFMIS does not expense costs to the date the expenditure is submitted, but rather to the completed time the expenditure is processed. Its weekly cost listings do not ensure they reflect the true expenditures incurred during that period.

5. Unless accurate data are habitually collected and retained for each company, the company control system should not be used. Units would require an internal control system which would record all expenditures by individual company in the battalion. This would include all expenditures of repair parts, fuel, ammunition, SSSC, and Class 2 and 4 monies. Light infantry units found the battalion format sufficient.

Units like mechanized infantry, armor, air defense, or field artillery may still find the company format useful.

6. The internal resource controls of each battalion appeared to be adequate. Resource expenditures were recorded in a timely and accurate manner. However, the installation's fuel distribution plan, which allowed issue of fuels at five separate points, often created delays in data collection. Units normally could not determine fuel expenditures until the monthly report was prepared by the installation logistic agency and parent brigade headquarters. The fuel control procedure currently in use needs to become more responsive to the unit.

7. Finally, the time and human resources required to process the model's resource expenditure report was minimal. Assigned unit personnel were capable of recording the unit data without them becoming a new training distractor. The unit supply officer and support platoon leader became the principal agent responsible to process the information.

SAMPLE DATA FOR BATTALION A

Major Training Activity Calendars:

Figure 5-1: 2 Aug 81 - 12 Sep 81

Figure 5-2: 13 Sep 81 - 4 Oct 81

Figure 5-3: 25 - 31 Oct 81

Resource Consumption Charts:

Figure 5-4: Repair Parts

Figure 5-5: Fuel

Figure 5-6: Other \$'s

Unit Average Cost Diagrams:

Figure 5-7: Repair Parts

Figure 5-8: Fuel

Figure 5-9: Other \$'s

MAJOR TRAINING ACTIVITY CALENDAR

UNIT BATTALION A

WEEK OF 2 Aug - 12 Sep-81

	S	M	T	W	T	F	S
2-8	N			(1/4) FTX			N
9-15	N						N
16-22	N			FTX			
23-29	FTX					FTX	
30-5			FTX				N
6-12	N						N

N: Non Training Day

	UNIT	FUEL (M/D gal)		CL IX (\$)	AMMO (*)	OTHER (\$)
2-8	Bn A	0	0	2042	2860-5.56 3050-.45c	3612
9-15	"	0	0	1093	0	5546
16-22	"	343	390	61	0	754
23-29	"	742	608	*5297	15000-5.56 8200-7.62	134
30-5	"	676	430	1311	0	216
6-12	"	0	0	*9374	0	789

* A Battalion/Division Munition Code

FIGURE 5-1

MAJOR TRAINING ACTIVITY CALENDAR

UNIT BATTALION A

WEEK OF 13 Sep - 24 Oct 91

	S	M	T	W	T	F	S
13-19	N						N
20-26	N						N
27-3	N						N
4-10	N						N
11-17	N	N					N
18-24	N						N

N: Non Training Day

	<u>UNIT</u>	<u>FUEL (M/D gal)</u>	<u>CL IX (\$)</u>	<u>AMMO (*)</u>	<u>OTHER (\$)</u>
13-19	<u>Bn A</u>	<u>0 0</u>	<u>5160</u>	<u>4015-5.56</u> <u>2200-.45c</u>	<u>818</u>
20-26	<u>"</u>	<u>0 0</u>	<u>5345</u>	<u>6351-5.56</u> <u>616-.45c</u>	<u>300</u>
27-3	<u>"</u>	<u>327 324</u>	<u>4972</u>	<u>0</u>	<u>2835</u>
4-10	<u>"</u>	<u>0 0</u>	<u>3548</u>	<u>0</u>	<u>2530</u>
11-17	<u>"</u>	<u>0 0</u>	<u>2572</u>	<u>1680-5.56</u>	<u>1048</u>
18-24	<u>"</u>	<u>0 0</u>	<u>19271</u>	<u>3000-7.62</u>	<u>3673</u>

* A Battalion/Division Munition Code

FIGURE 5-2

MAJOR TRAINING ACTIVITY CALENDAR

UNIT BATTALION A

WEEK OF 25 - 31 Oct 81

S M T W T F S

25-31

N						

N: Non Training Day

	<u>UNIT</u>	<u>FUEL</u> (M/D gal)	<u>CL IX</u> (\$)	<u>AMMO</u> (*)	<u>OTHER</u> (\$)
25-31	<u>Bn A</u>	<u>0 0</u>	<u>5472</u>	<u>0</u>	<u>2384</u>
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

* A Battalion/Division Munition Code

FIGURE 5-3

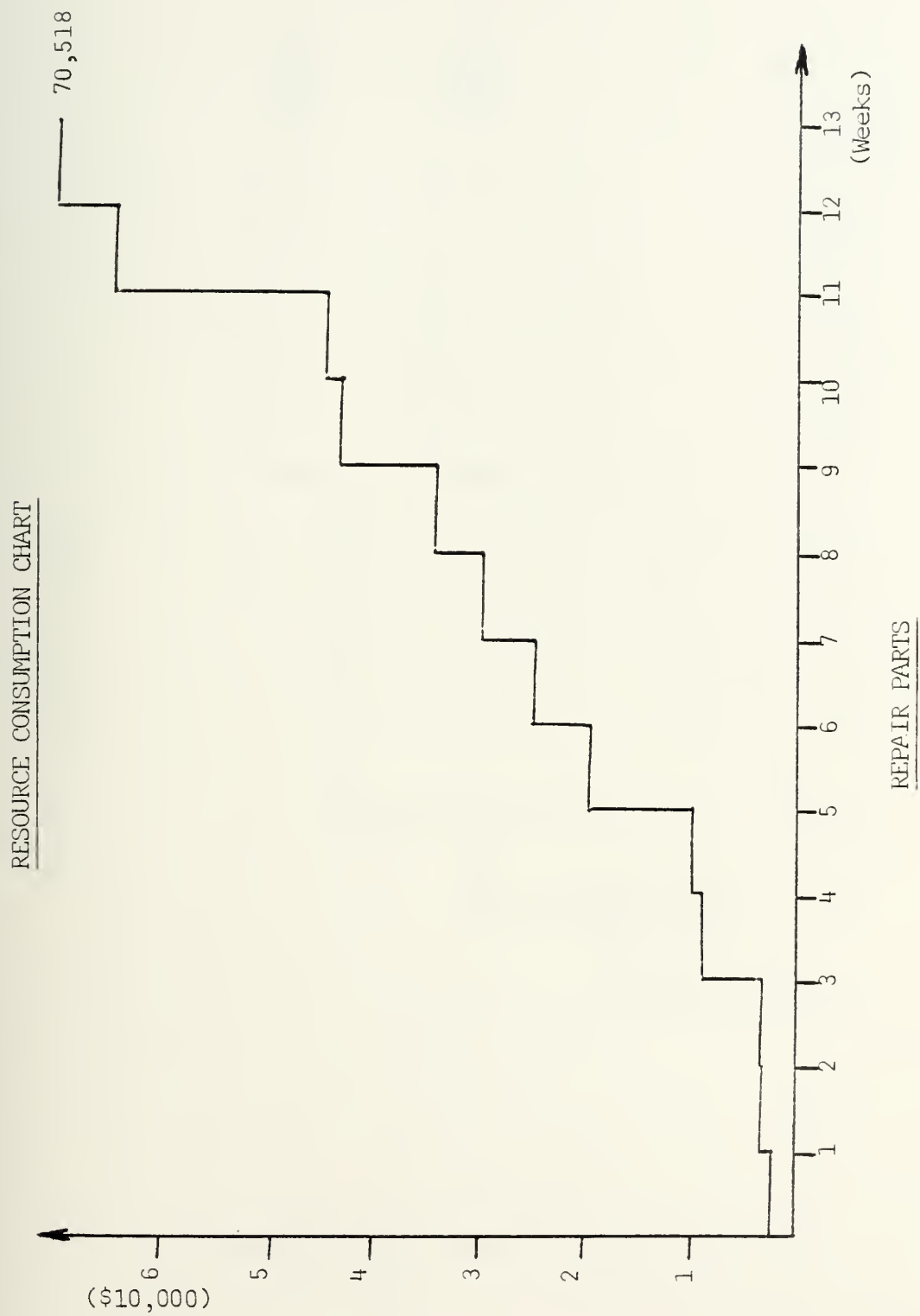


FIGURE 5-4

RESOURCE CONSUMPTION CHART

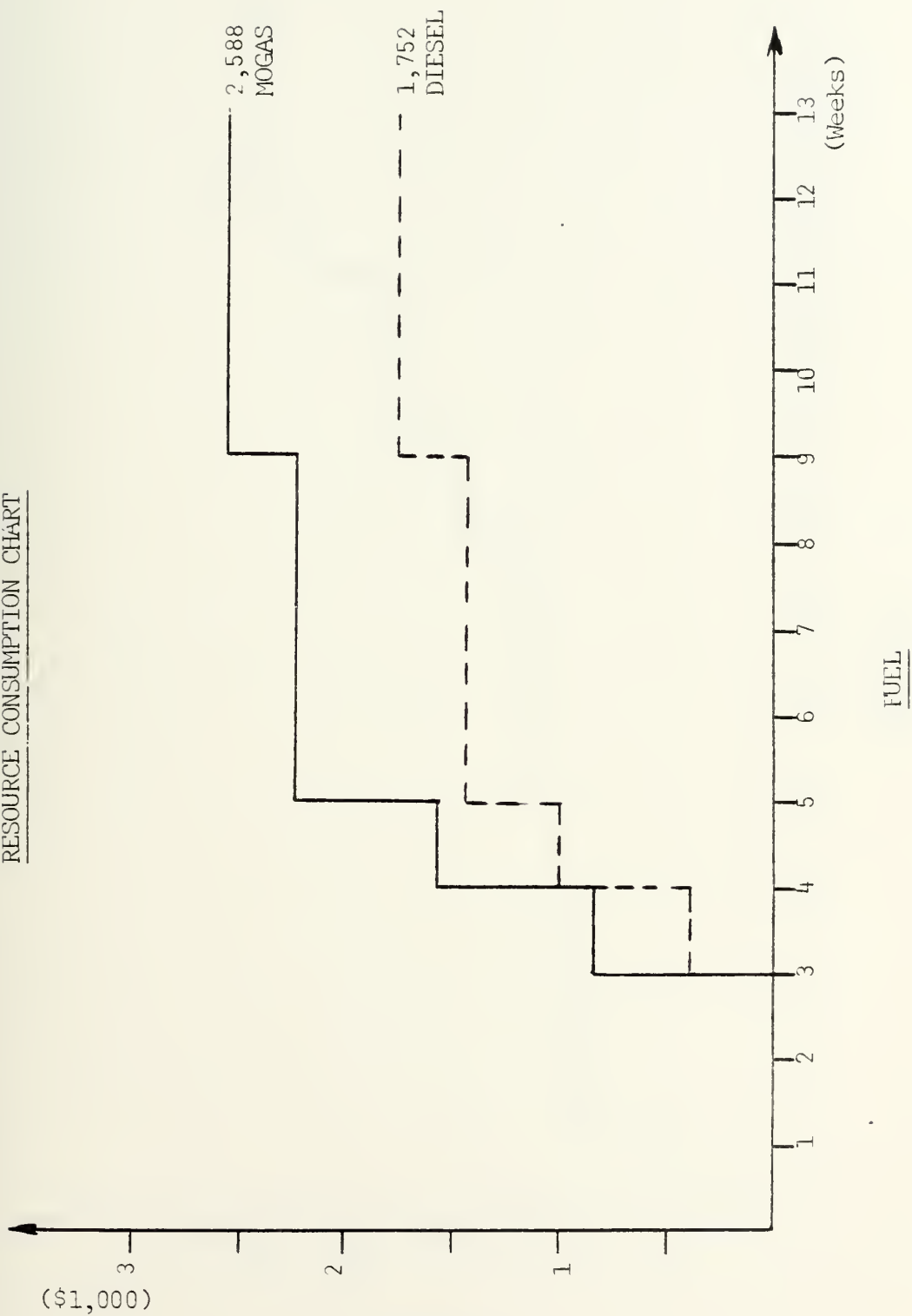


FIGURE 5-5

RESOURCE CONSUMPTION CHART

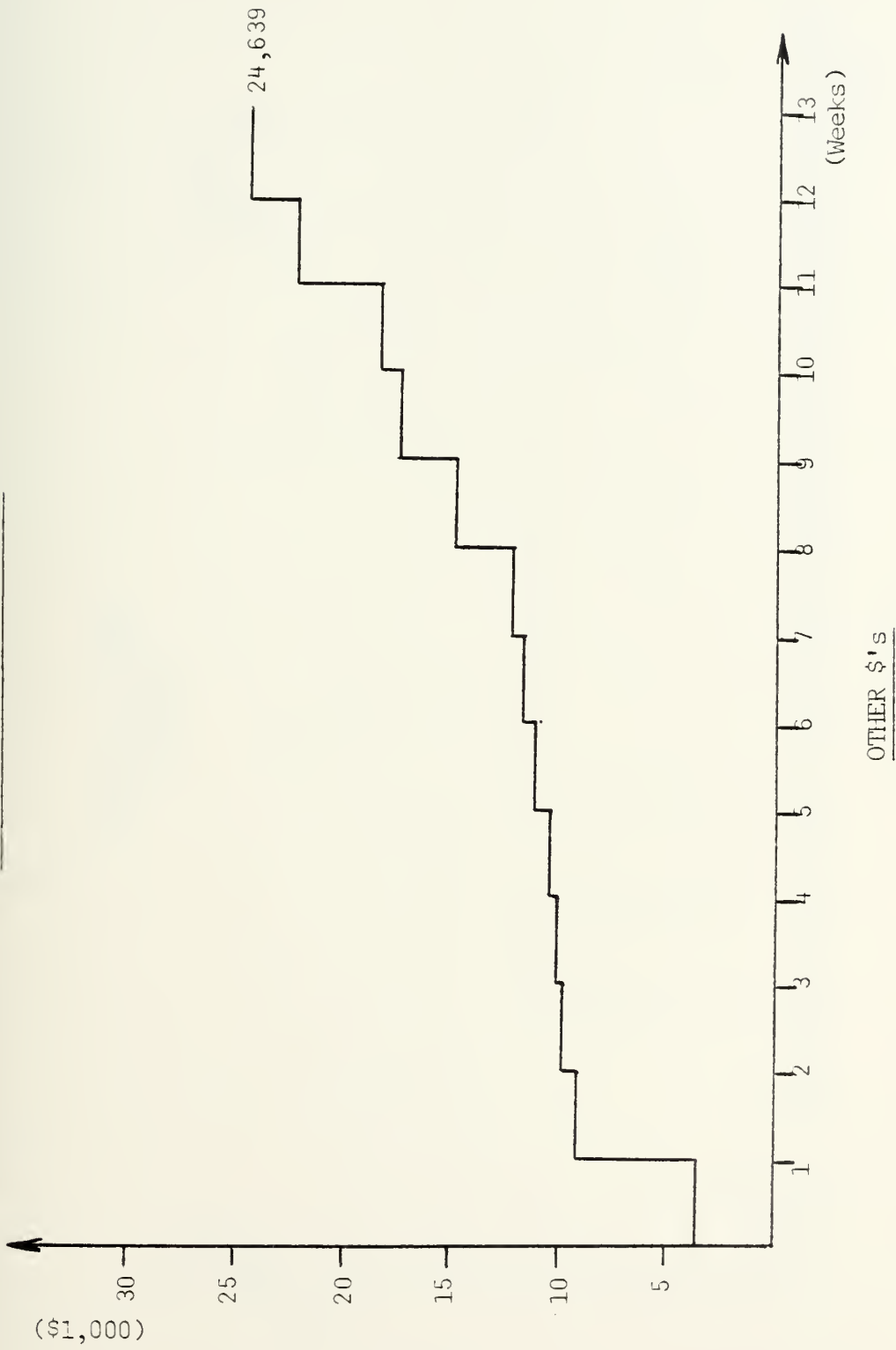


FIGURE 5-6

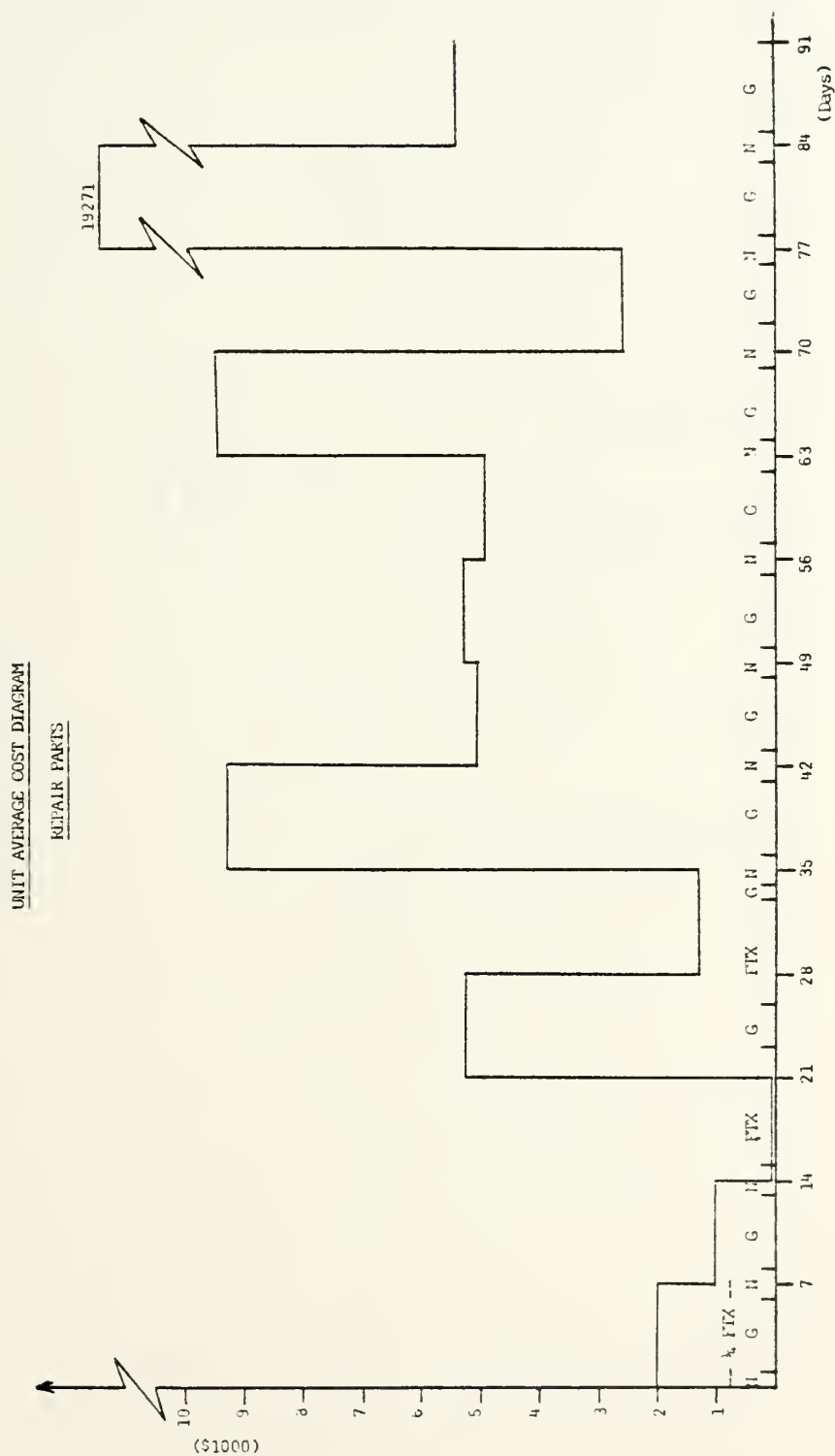


FIGURE 5-7

UNIT AVERAGE COST DIAGRAM

FUEL

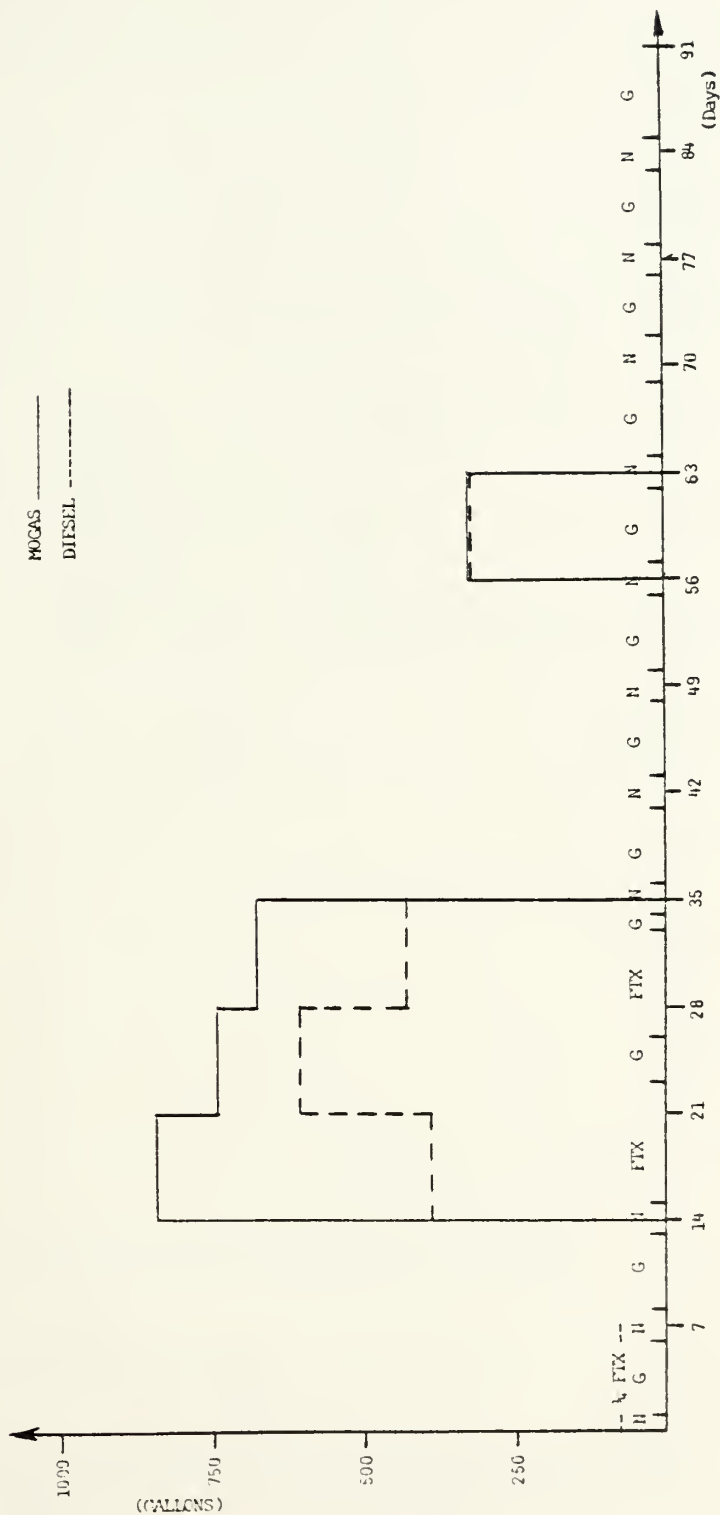


FIGURE 5-8

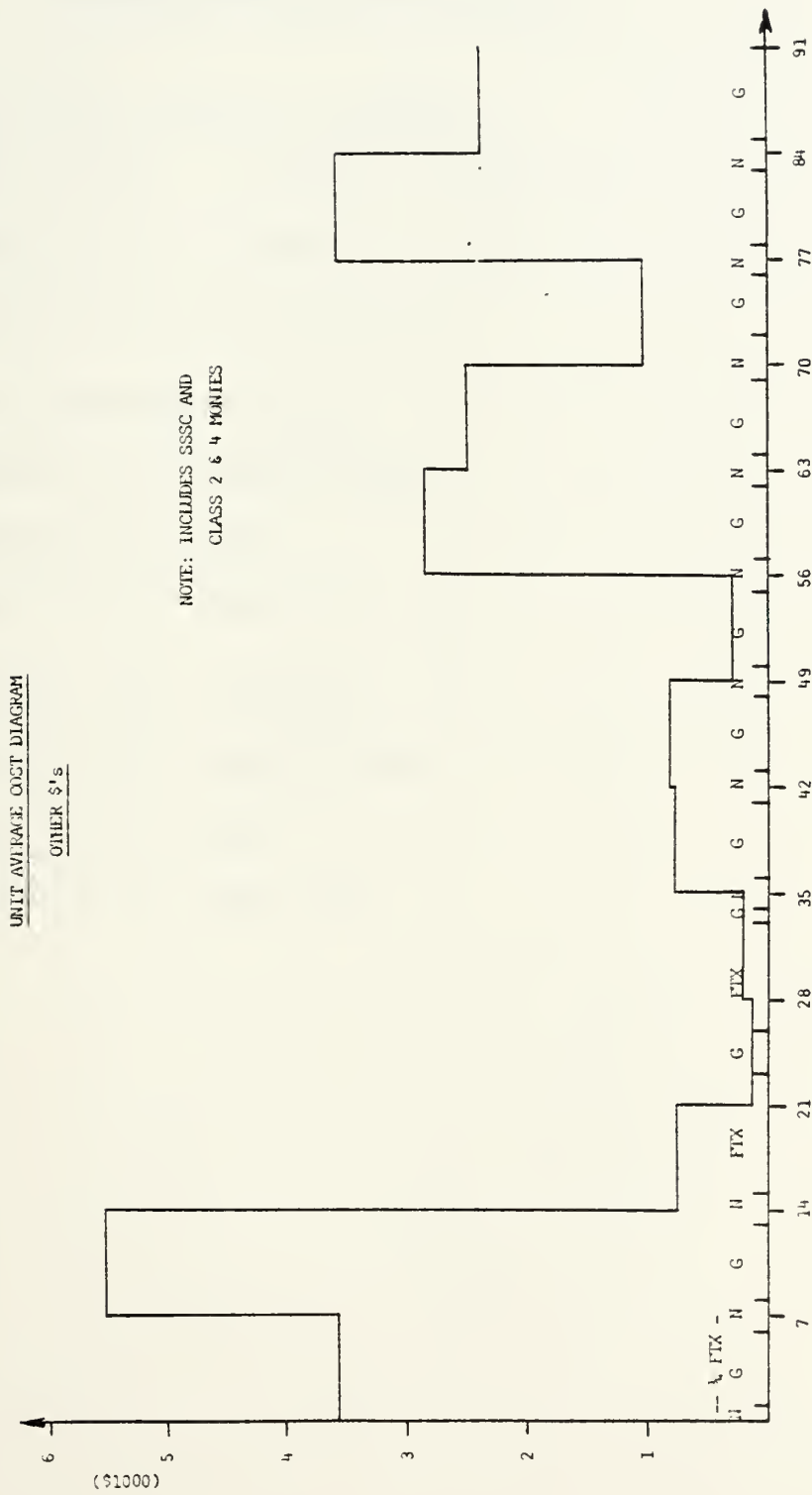


FIGURE 5-9

SAMPLE DATA FOR BATTALION B

Major Training Activity Calendars:

Figure 5-10: 2 Aug 81 - 12 Sep 81

Figure 5-11: 13 Sep 81 - 4 Oct 81

Figure 5-12: 25 - 31 Oct 81

Resource Consumption Charts:

Figure 5-13: Repair Parts

Figure 5-14: Fuel

Figure 5-15: Other \$'s

Unit Average Cost Diagrams:

Figure 5-16: Repair Parts

Figure 5-17: Fuel

Figure 5-18: Other \$'s

MAJOR TRAINING ACTIVITY CALENDAR

UNIT BATTALION B

WEEK OF 2 Aug - 12 Sep 81

	S	M	T	W	T	F	S
2-8	N	($\frac{1}{2}$) .50c Qual					N
9-15	N						N
16-22	N		($\frac{1}{2}$) M16 Qual				N
23-29	-----	PTX	-----				N
30-5	N						N
6-12	N	($\frac{1}{2}$) M16 Qual					N

N: Non Training Day

	UNIT	FUEL (M/D gal)		CL IX (\$)	AMMO (*)	OTHER (\$)
2-8	Bn B	125	71	1996	600-.50c	61
9-15	"	278	112	1792	0	700
16-22	"	227	92	1692	1200-5.56,42-smk 3400-7.62,18-star	561
23-29	"	1035	638	1934	5000-5.56B,8-Dragon 12000-7.62B,6-TOW	563
30-5	"	605	449	*3537	0	145
6-12	"	74	63	4677	2400-5.56	356

* A Battalion/Division Munition Code

FIGURE 5-10

MAJOR TRAINING ACTIVITY CALENDAR

UNIT BATTALION B

WEEK OF 13 Sep - 24 Oct 81

	S	M	T	W	T	F	S
13-19	N						N
20-26	N		(%) M16 Firing	(%) .45c Firing	(%) M203 Firing		N
27-3		(%) M16, M60 Firing		-----	(%) M16 Firing -----		N
4-10	N						N
11-17	N						N
18-24	N						N

N: Non Training Day

	UNIT	FUEL (M/D gal)		CL IX (\$)	AMMO (*)	OTHER (\$)
13-19	<u>Bn B</u>	<u>197</u>	<u>182</u>	<u>827</u>	<u>0</u>	<u>2044</u>
20-26	<u>"</u>	<u>184</u>	<u>98</u>	<u>154</u>	1500-.45c 575-40mm, 2000-5.56	<u>3795</u>
27-3	<u>"</u>	<u>456</u>	<u>528</u>	<u>2010</u>	10080-5.56 2000-7.62	<u>243</u>
4-10	<u>"</u>	<u>171</u>	<u>205</u>	<u>798</u>	<u>0</u>	<u>1296</u>
11-17	<u>"</u>	<u>78</u>	<u>74</u>	<u>297</u>	<u>0</u>	<u>249</u>
18-24	<u>"</u>	<u>149</u>	<u>113</u>	<u>5011</u>	<u>0</u>	<u>6646</u>

* A Battalion/Division Munition Code

FIGURE 5-11

MAJOR TRAINING ACTIVITY CALENDAR

UNIT BATTALION B

WEEK OF 25 - 31 Oct 81

S M T W T F S

25-31

N						N

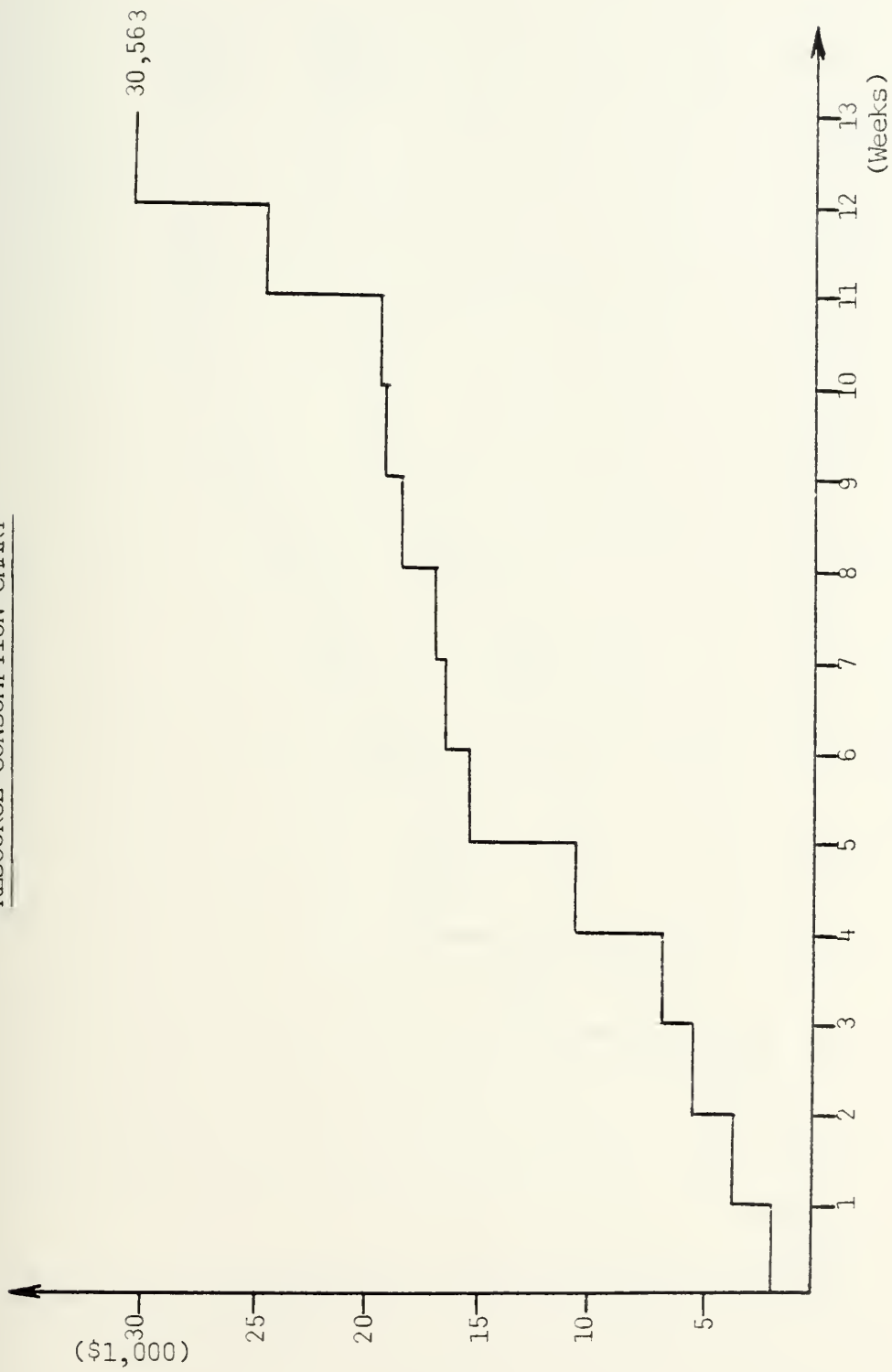
N: Non Training Day

	<u>UNIT</u>	<u>FUEL (M/D gal)</u>	<u>CL IX (\$)</u>	<u>AMMO (*)</u>	<u>OTHER (\$)</u>
25-31	<u>Bn B</u>	<u>122 93</u>	<u>5938</u>	<u>9000-5.56B,2-claym</u> <u>1400-40mmB</u>	<u>1809</u>
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

* A Battalion/Division Munition Code

FIGURE 5-12

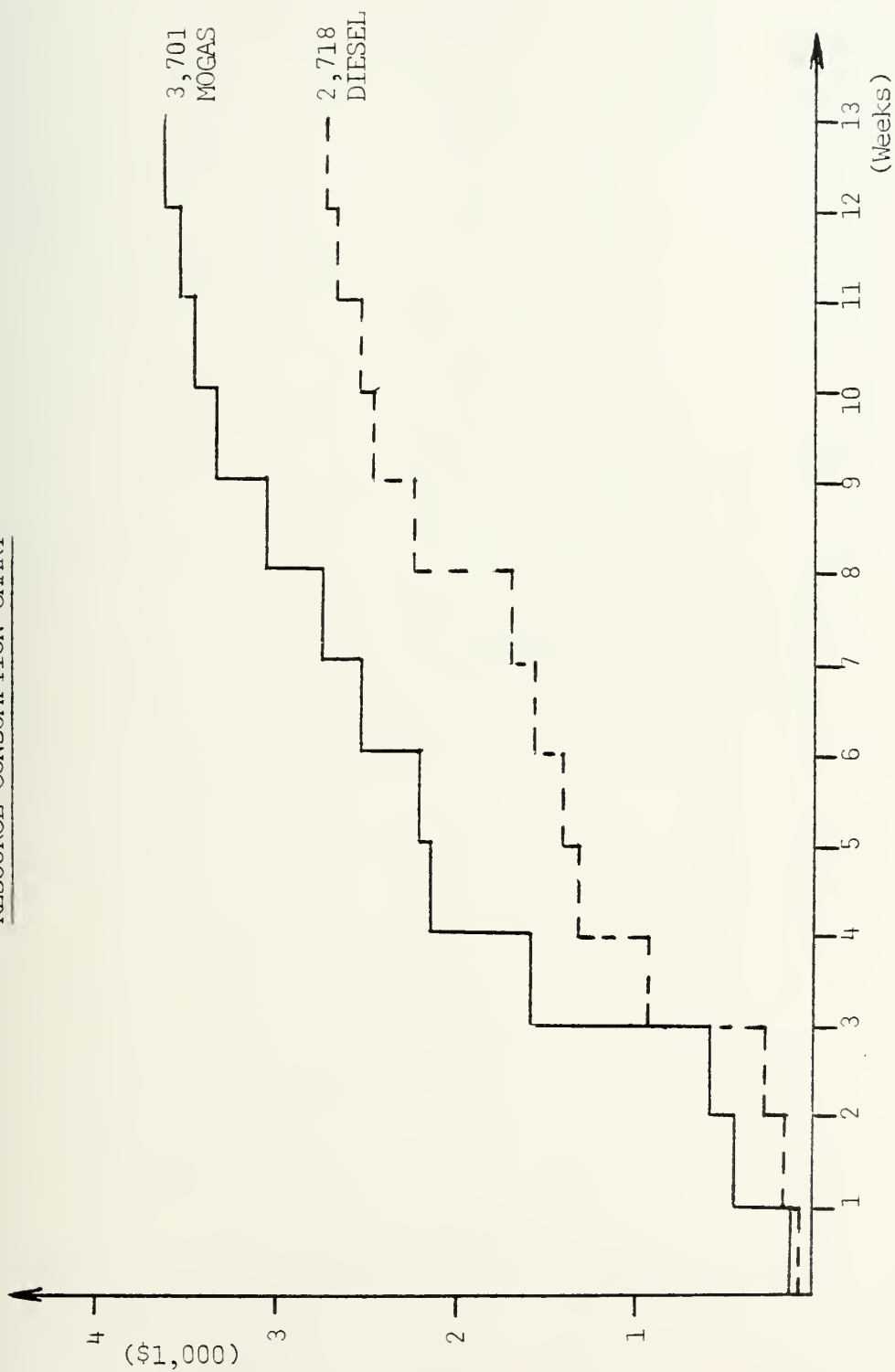
RESOURCE CONSUMPTION CHART



REPAIR PARTS

FIGURE 5-13

RESOURCE CONSUMPTION CHART



FUEL

FIGURE 5-14

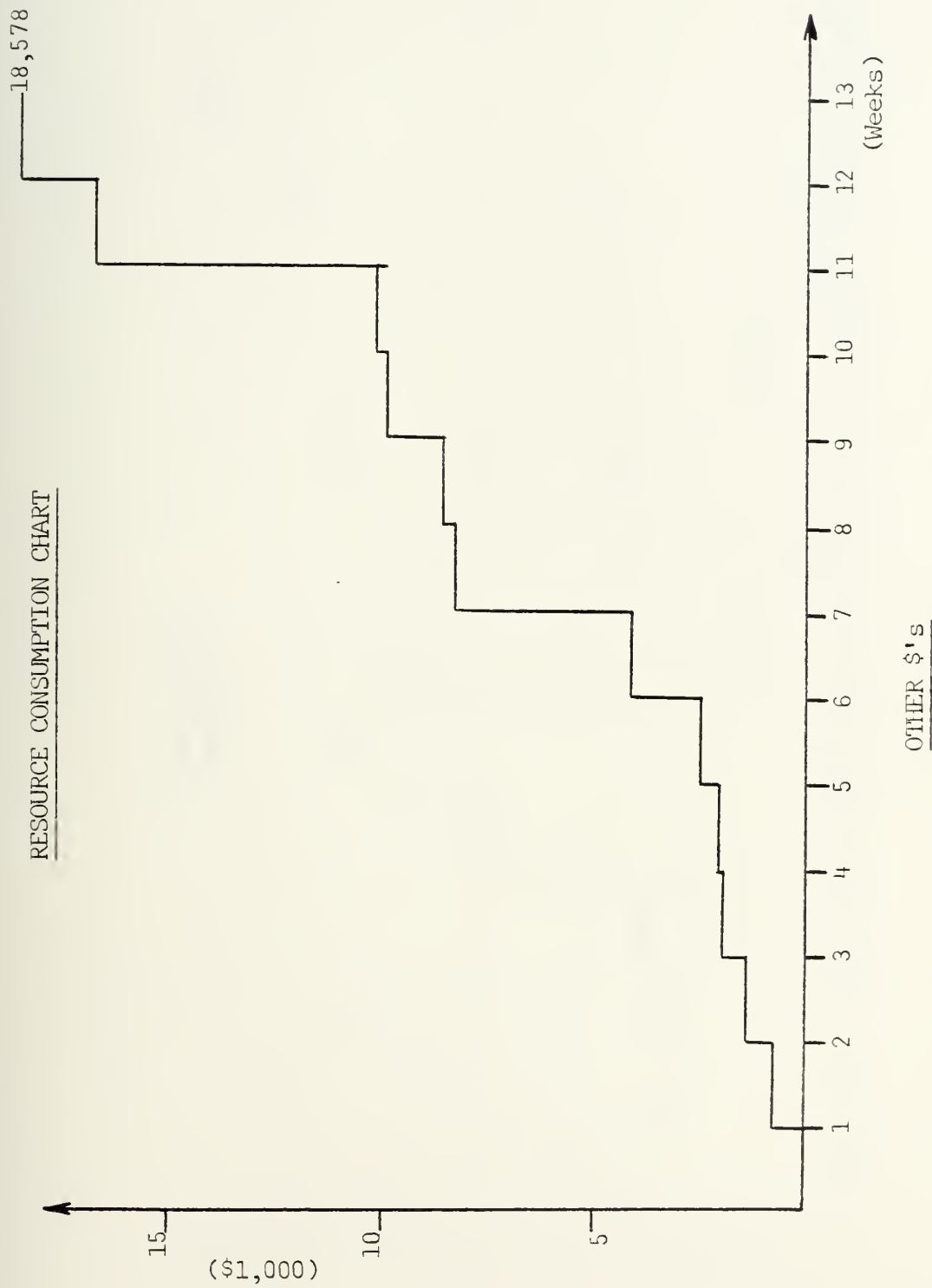


FIGURE 5-15

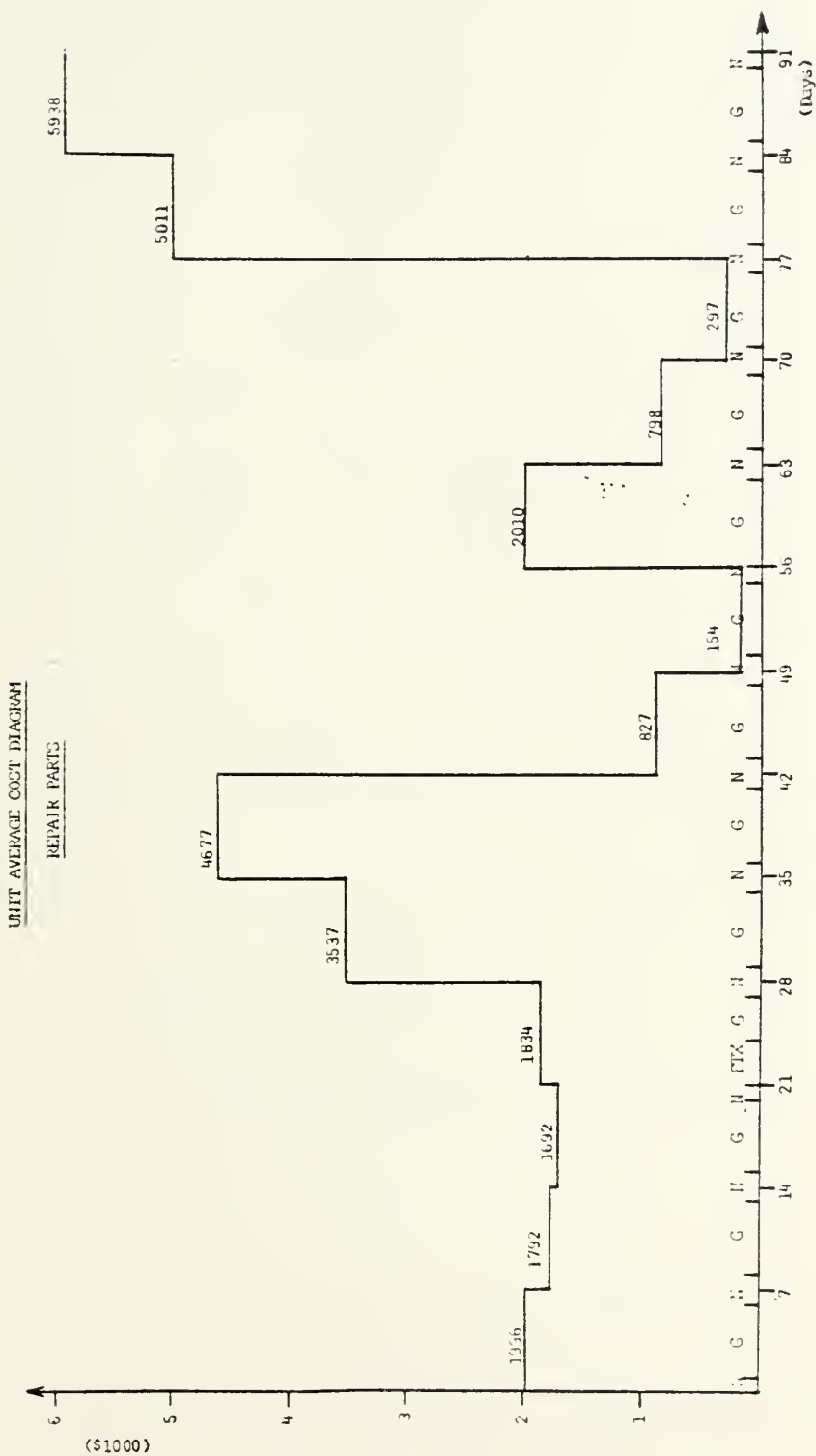


FIGURE 5-16

UNIT AVERAGE COST DIAGRAM

FUEL

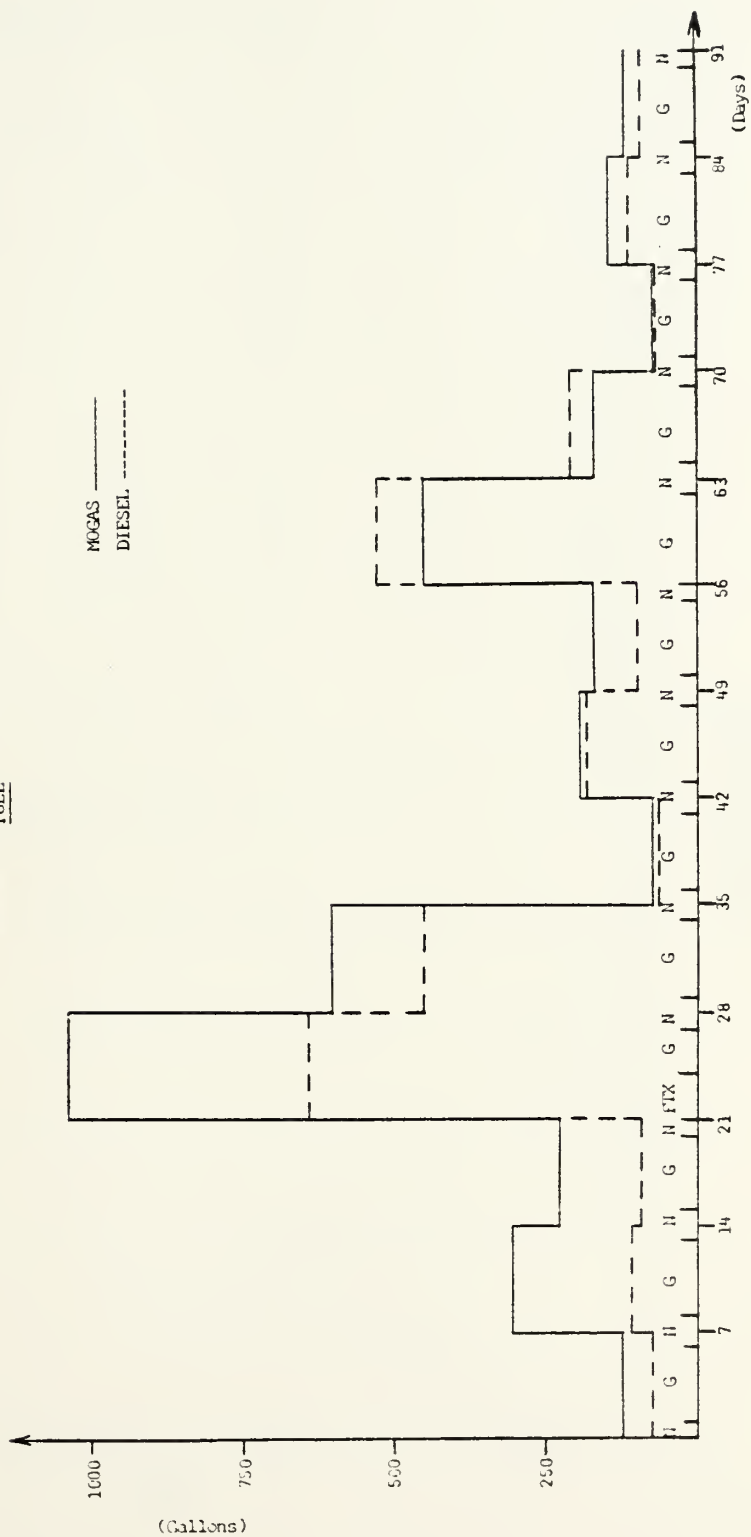


FIGURE 5-17

UNIT AVERAGE COST DIAGRAM

OTHER \$'s

NOTE: INCLUDES SSSC AND
CLASS 2 & 4 MONIES

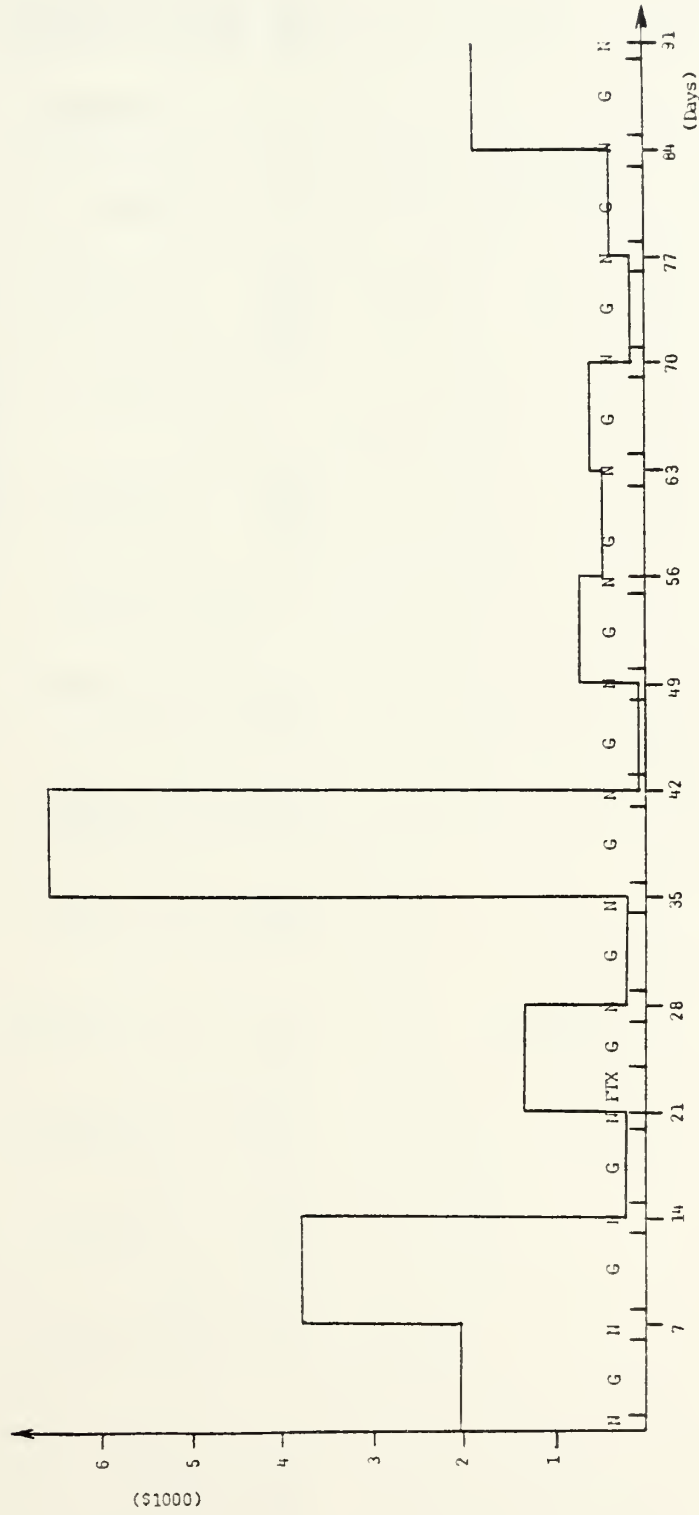


FIGURE 5-18

COST/EVENT RECORD CARD

FIXED COSTS		FTX VARIABLE COSTS			
	FUEL (gal)	FUEL (gal)	AMMUNITION (rd)		
	OTHER \$				
	DIESEL				
	MOGAS				
	RP's \$				
Bn A	1244	14.3	12.4	432	
Bn B	463	49.8	37.5	285	

FIGURE 5-19

VI. SUMMARY AND CONCLUSIONS

A. SUMMARY

Initially, the reader was introduced to the growing Congressional concern and interest in the Army's management of its training resources. This thesis selected a specific financial control structure, the Mechanized Battalion Cost Equivalent, used by U.S. Army Forces Command, to examine how budget forecasting and funding allocations are conducted for its training resources. After the system's structure and methodology were examined, two alternative courses of action surfaced to help improve FORSCOM's training resource management. One alternative is to retain the current MBCE fund allocation methodology, concentrating on improving the cost factors for better allocation equity. The second choice would be to evolve the system into a new format which directly budgets and allocates training resources by training activities. Both approaches use a standardized common cost methodology; however, the latter alternative appears to be a preferable choice.

Should FORSCOM continue to use the MBCE method and only upgrade the common cost factors utilized, training resource management will not be substantially improved. Units are not provided with a new standardized bookkeeping tool or format that would improve their resource management skills or

their procedures. MBCE was developed to allocate training funds, yet it does not directly measure the training funded. With funding allocated by numbers and types of units, the key output measurement, activity level, is ignored. Additionally, the unit priority program established by the Army is not addressed. In the current format, all units receive the same proportioned funding regardless of priority standing. Finally, MBCE does not address environmental differences or local training facilities as variables for each funded installation. Simply stated, MBCE, as an initial costing methodology, needs to progress into a new format using training activities as the base factor.

The budgeting and allocation of training funds, using the common factor of training activities, may be an appropriate alternative. Units currently generate the required inputs, activities conducted with associated expenses. However, they habitually fail to efficiently retain this historical data. Improvements in historical data collection and its retention could be accomplished with usage of a standard Army-wide format. Collected data could be processed on prescribed schedules to a central collection facility. Using manual or automated processing equipment, unit training projections and their associated costs could be developed for a unit. The use of a central processing facility, enhanced by a minicomputer, maximizes control and operating efficiency while minimizing personnel and hardware costs. Such a process

allows for central management of resources at the division/ installation level where resources are dispersed (i.e., the responsibility level). Finally, units would not be hindered or distracted by lengthy budgetary problems and could concentrate on their principal mission in training their units to a specified level of combat readiness. Measurement should not only be in dollars, but also by activities accomplished.

Equally as important as selecting a data processing format is the need to define standard terms and rules for all Army commands. The most commonly misdefined term is a "battalion training day." Since each activity conducted provides a form of training proficiency regardless of its nature, a "battalion training day" should be replaced by terms which better clarify types of activities conducted. The terms might be variable (field), fixed (garrison), and non-training days. These terms should readily highlight the distinct incremental cost fluctuations between the types of activities. This would allow funding to be definable by an activity which is easily understood and measurable. Discretionary control over the unit training activity is maintained at unit level with the commander retaining selection of what specific training is to be accomplished within an activity day.

It is normally difficult to change a highly institutionalized system as described due to the nature and variety of its participants. An efficient and effective management of financial resources is critical not only for the FORSCOM

command but also for the Army. Dollars buy our people, equipment, and time. Adequate management of training funds has become paramount due to the high levels of personnel turbulence and weakening personnel skill levels. Resource management must begin where training is conducted, at unit level. Common costing techniques are needed to help Congress who appropriates monies and commanders who must train the force to effectively evaluate the efficiency of conducted operations. Effectiveness remains a subjective interpretation with mission accomplishment the primary goal.

Evaluating the financial structure and methodology utilized by FORSCOM is a first step in addressing the objective of fiscal resource responsibility. Improvements can and should be undertaken. With appropriate education and commitment of the participants, efficient fiscal resource management can be obtained.

The remaining paragraphs will summarize the general conclusions of the author and outline those areas considered appropriate for future study.

B. CONCLUSIONS

1. The current funding control system utilized by FORSCOM to forecast and allocate training resources is inadequate. It does not directly measure the training funded. As an initial costing methodology, it needs to measure training activities rather than type or number of units within a command.

2. Of the two principal Army-sponsored programs related to training resource management currently being developed, the Battalion Training Model appears to be the most promising aid for units. Although the Training Management Control System introduces enhanced computer operations down to battalion level, the system appears to be too time and human resource intensive for operational units. While BTM still must obtain a standard cost system for its projections, it establishes a method to forecast and schedule training activities without increasing the work or equipment for battalion-sized units.

3. The proposed internal control systems for battalions and divisions illustrated that historical unit cost data could be collected and retained with minimal impact upon battalion operations. As verified by the field test, the control system might serve as the costing system for the Battalion Training Model. It is capable of separating fixed, variable, and non-training day costs for BTM. However, BTM's current design to identify a weapon's range day cost should be considered only as an additional fixed cost and its ammunition expenditures should be monitored to each munition's ceiling. The model's format already allows for accounting of ammunition expended at range activities.

C. AREAS FOR FUTURE STUDY AND CONSIDERATION

1. It is recommended that an expanded field test of the proposed fiscal control system be conducted to determine if

the model can serve as the costing methodology for the Battalion Training Model. Selected units should exercise the proposed model and BTM. Once new cost figures are determined, future projections of resource expenditures could be compared to later actual costs. Should the projections prove reasonable, the system could serve as a format for budget forecasting and fund allocations.

2. A cost/benefit study should be conducted to determine if automated equipment might enhance the analysis and record keeping of the proposed division system.

3. Further study is needed to identify the costs incurred for training activities by support units. Major training activities often require additional logistic support from non-organic agencies or units. These add-on costs are needed to determine a true activity cost. The support costs might be reported to the division by the support agencies or to the using unit for their inclusion into an activity's cost.

The objectives of this study were to evaluate the internal fiscal control system used by U.S. Army Forces Command for training resource management and to explore the potential benefit of a simple, enhanced methodology for its improved management. The conclusions and recommendations provided herein support the need for an improved fiscal control system in training resource management. The proposed battalion/division system is one possible answer.

APPENDIX A

FORTY-TWO P2 MISSION FUND ISSUES¹¹

Training of Individual/Teams

Training Through Company Level

Training Battalion or Task Force

Training Brigade or Division

Training Special Activity: Drum

Training Special Activity: JWC

Training Special Activity: NWTG

Training Special Activity: Amphibious

Training Special Activity: BCT Alaska

Training Schools and Facilities

Chemical Defense Equipment OTC

Chemical Defensive Equipment REC

Unit Exchange Program

Special Requirements

Tactical Intelligence Readiness Training (REDTRAIN)

Annual Service Practice

Training Simulator Operations and Maintenance

Army Marksmanship Program

Unit Activations UNAO

¹¹The above forty-two P2 mission fund issues were extracted from the FORSCOM Budget Guidance, Headquarters U.S. Army Forces Command, Fort McPherson, Georgia, FY 82-83.

Unit Activations UNAR
Unit Reorganizations UNAO
Unit Reorganizations UNAR
MTOE Modifications OTC
Support of New Tactical Systems REC
Headquarters FORSCOM
Headquarters SOUTHCOM
National Training Center
Flying Hour Program
JCS Exercises
RC Support
Training OPFOR
Rapid Reinforcement
ADP Mission Application Non CD
Golden Knights
Camouflage Screen Replacement
Force Sustainment
Cold Weather Clothing and Equipment
Tactical Exploitation of National Capabilities: (TENCAP)
Compat Vehical Maintenance
Missile Maintenance
Training Aids/Audio Visual

APPENDIX B

INSTALLATION TRAINING ISSUES AND TRAINING EVENT CATEGORIES ¹²

1. Training of Individuals, Squads and Crews Issue

This issue supports resources required to provide training of individuals, squads, and crews in units. The majority of individual training is conducted concurrently with training of squad/crew and platoon. However, the individual training accounted for in this issue is that portion conducted separately from collective training. Resources for this issue provide fuel, spare parts, travel, transportation, and supplies associated with Soldier's Manual training, weapons training, and training in general and special knowledge subjects. Examples are: leadership development training, administration of SQT, marksmanship training, NBC training and testing, individual and crew-served weapons qualification, general knowledge subject training, training in specialized skills required by local conditions such as cold weather indoctrination and squad/crew ARTEP tasks.

a. Individual Soldier's Manual/Aircrew Training
Manual Training Event Category. Examples: Soldier's Manual training, EIB training, SQT training, and maintenance training.

¹²The installation training issues and training event categories were extracted from the Fort Ord FY 82 Command Operating Budget, Department of the Army, Fort Ord, California, 10 March 1981.

b. Individual Weapons Training Event Category.

Examples: M16 field fire and record fire, LAW/VIPER familiarization, pistol familiarization, and qualification and DRAGON qualification.

c. Squad/Crew ARTEP Training Event Category.

Examples: squad/crew level ARTEP task training with integrated Soldier's Manual training, infantry squad forced march/live fire training and evaluation.

d. Crew-Served Weapons Training Event Category.

Examples: .50 cal familiarization, TOW qualification, M60 qualification, and mortar crew drill.

e. Flying Hour Program Aircrew Training Manual Training Event Category. Days and dollars required to provide individual proficiency (Aviation units only).

2. Training of Platoons and Companies Issue

This issue supports resources required to provide ARTEP task, and deployment training to platoon and company-sized units. Resources in this issue support training to the basic proficiency levels for platoons and companies required by ARTEP's, emergency deployment requirements and specific contingency missions. Resources for this issue provide fuel, spare parts, transportation, travel, and supplies to support training.

a. Platoon and Company ARTEP Training and Evaluation Event Category. Garrison and field ARTEP task training, ARTEP

evaluation for separate Det/Plt/Co, ARTEP evaluation for DS/GS units conducted in conjunction with a larger exercise.

b. Emergency Deployment Readiness Exercise (EDRE) Training for Detachments, Platoons and Companies Event Category. Examples: loadout training on cargo aircraft, rail cars, trucks, or navel ships; company-level emergency deployment readiness exercises, company-level unit readiness tests and alerts.

c. Company Team Live Fire Exercise Event Category. Defensive or offensive combined arms live fire exercise for a maneuver company augmented by an appropriate supporting slice of divisional combat and combat support elements.

d. Company Contingency Mission Training Event Category. Training for contingency missions that do not correlate directly with an ARTEP task. Examples: civil disturbance training, travel and TDY for reconnaissance contingency mission sites, training for defense of a sensitive government storage site.

e. Company Special Environment Training Event Category. Resources provide for training of squads, platoons, and companies in skills, tactics, and techniques required for operation in mountain, northern, jungle, desert, or amphibious environments.

f. Company Exchanges with Allied Nations Event Category. Resources provide for participation in formal or informal exchange programs for periodic exchanges of company

or smaller sized units between Allied Nations (e.g., U.S.-Canadian Exchange).

g. Annual Service Practice for Batteries Event Category. Annual air defense unit battery live firing.

h. Flying Hour Program Mission Support Training Event Category. Resources required for support of collective training at platoon/company/troop level (Aviation units only).

3. Training of Battalions Issue

Resources required to provide ARTEP, contingency mission and deployment training at battalion level. Resources in this issue support training to the basic proficiency levels required by ARTEP's, command post exercises, deployment requirements, and specific contingency missions. Resources in this issue provide fuel, spare parts, transportation, travel, and supplies to support training. Examples are: training in ARTEP tasks, ARTEP evaluations, EDRE's, CPX's, combined arms live fire exercises, training for specific contingency missions and training of battalion staffs using computer assisted war games.

a. Battalion ARTEP Training (FTX) Event Category. Resources provide for battalion-level training required to overcome deficiencies found on ARTEP evaluations. Battalion level training is defined as any training consisting of battalion level ARTEP tasks. Integrated individual and collective training of subordinate unit resources are accounted for as part of this event category.

b. Battalion CPX Event Category. Resources provide for battalion command and control training required to overcome deficiencies found on ARTEP evaluations or for leader training.

c. Battalion ARTEP Evaluation Event Training Category. Resources required for battalion external evaluations.

d. Emergency Deployment/Employment Readiness Exercise (EDRE) Training for Battalions Event Category. Battalion level static load training, emergency deployment readiness exercises, or unit readiness tests and alerts.

e. Battalion Combined Arms Live Fire Exercise Event Category. Defensive or offensive combined arms live fire exercise for a maneuver battalion augmented by an appropriate slice of divisional combat and combat support elements.

f. Special Environmental Training for Battalions Event Category. Resources provide for training of battalions in tactics and techniques required for operation in mountain, northern, jungle, desert, or amphibious environments.

g. Battalion Level Contingency Mission Training Event Category. Training for contingency missions that do not correlate directly with ARTEP tasks. Examples: civil disturbance training, local contingency missions such as support to postal operations, or disaster relief missions.

h. Annual Service Practice of Battalions Event Category. Annual air defense unit battalion live fire at an appropriate facility.

i. Flying Hour Program Mission Support Training Event Category. Resources provide for support of collective training at the battalion level (Aviation units only).

4. Training of Brigades and Divisions Issue

Resources in this issue provide for the deployment, command and control, and sustainment training to brigades, divisions and corps. Resources shown provide fuel, spare parts, transportation, travel, and supplies to support training to the basic proficiency levels required by war plans and specific contingency missions. Examples are: command post exercises at brigade, division and corps levels, exercises/alerts and associated FTX's.

a. Brigade Command Post Exercise Event Category. Resources for field or garrison command post exercises or computer simulations (includes NCAIC exercises).

b. Division/Corps CPX Event Category. Resources for division or corps CPX's or computer simulations.

c. Brigade Emergency Deployment/Deployment Readiness Exercise (EDRE) Training Event Category. Examples: brigade level EDRE, unit readiness tests and alerts.

d. Brigade Field Training Exercise Event Category. Resources provide for brigade level field exercises with participation by brigade headquarters and headquarters company and an appropriate supporting slice of divisional combat support, combat service support elements, and at least one maneuver battalion.

e. Division FTX Event Category. Resources provide for division level field exercises with participation by the division headquarters and headquarters company with organic combat, combat support and combat service support elements.

f. Flying Hour Program Mission Support Training Event Category. Resources required to support collective training at division level (Aviation units only).

g. Participation in Joint Exercises. Brigade or division participation in externally directed joint training or readiness exercises such as Balmain Tiger, Brim Frost and Team Spirit.

5. Garrison Operations or Force Sustainment Issue

Garrison operations costs are defined as the P2 Mission costs incurred by units to exist every day of the year, in the force structure (administrative, maintenance and logistical costs), with the exception of units performing 24-hour operational missions. Garrison operations costs will continue to be incurred while the unit is conducting training and should be viewed as the cost of ownership of having the unit in the force structure while conducting no training. These resources are fixed costs. Examples are: Mission Self Service Supply Center supplies, all fuels and repair parts expended in support of administrative functions, post guard and funeral details.

a. Support to Installations Event Category. Resources used for installation housekeeping functions and special requirements. Examples: Post Guard, Funeral, or Police details,

grass cutting details, support provided local community parades and holiday celebrations. Combat Support and Combat Service Support units providing installation support must assess the training value obtained from providing support and determine to which funding issue the resources should be applied. Resources for installation tasking to support active component training activities (ARTEP evaluation, NCO academies, SQT evaluation) are not reported in this issue but in the appropriate training issue.

b. Garrison Operational Fixed Costs Event Category. These resources are the costs that are computed as the costs remaining after all support costs are identified. Examples are: mission SSSC supplies, all fuel and repair parts expended in support of administrative functions, and non-duty days (i.e., Saturday, Sunday, and holidays).

c. Training Schools and Facilities Event Category. Resources required for operation of NCOA in the conduct of the three primary and basic leadership courses: PNCOC, BNCOC and PLC. This event category provides the resources for foundation training for the noncommissioned officer education system (NCOES) and provides approximately half of the U.S. Army leadership instruction taught in a school environment for NCO's.

d. Training Simulator Operations and Maintenance Event Category. Resources required for operation and maintenance of any training simulator devices (pilot training

flight simulators, Redeye moving target simulators) utilized by P2 Mission forces.

e. ADP Mission Application Non-Contingency Deployment Event Category. Resources required for mission automated data processing support of post units. Resources for this issue provide for repair parts, supplies, travel, and transportation in support of ADP systems. Examples are: magnetic tapes, discs, rental of punch card machines, and equipment maintenance of government-owned ADPE (DISCOM only).

APPENDIX C

TRAINING BUDGET ESTIMATE TERMS¹³

Unit. Although it may be supporting other organizations--battalion, separate company, or detachment responsible for submitting a budget because it has a TOE/TDA mission with its own independent organization.

Training Issue. Name of one of the 42 training issues which must be addressed in a unit budget submission.

Location. The site/installation where a training event is scheduled to take place.

Event Category. The training activities planned with the training issue identified; e.g., weapons qualification. Event categories will repeat within an issue if they occur at more than one location.

Number of Days. The number of days the unit will be conducting the event in FY 8_. If the only part of a day or a portion of the unit is involved in an event category, then a proportion must be determined: e.g., 1 company of a battalion doing an ARTEP for 3 days would be .25 x 3 days, or .75 days for the battalion.

¹³The training budget estimate terms were extracted from the Fort Ord FY 82 Command Operating Budget, Department of the Army, Fort Ord, California, 10 March 1981.

Travel/TDY (Personnel). Costs incurred to transport personnel to and from an event location by means not organic to the unit or the division; e.g., commercial bus, USAF aircraft, commercial air.

Transportation (Equipment). Costs incurred due to having equipment or "things" moved to and from a training site/installation; e.g., commercial trucking of heavy vehicles.

Contracts. Any costs for contractual services performed in support of training; e.g., chemical latrines.

Supplies/Equipment. Cost of repair parts and other technical supplies consumed in the operation and maintenance of equipment to support the training event category.

Total. The total dollar expenditure for each event category. The total at the bottom of the page should reflect the total number of days or dollars for each of the column headings.

APPENDIX D

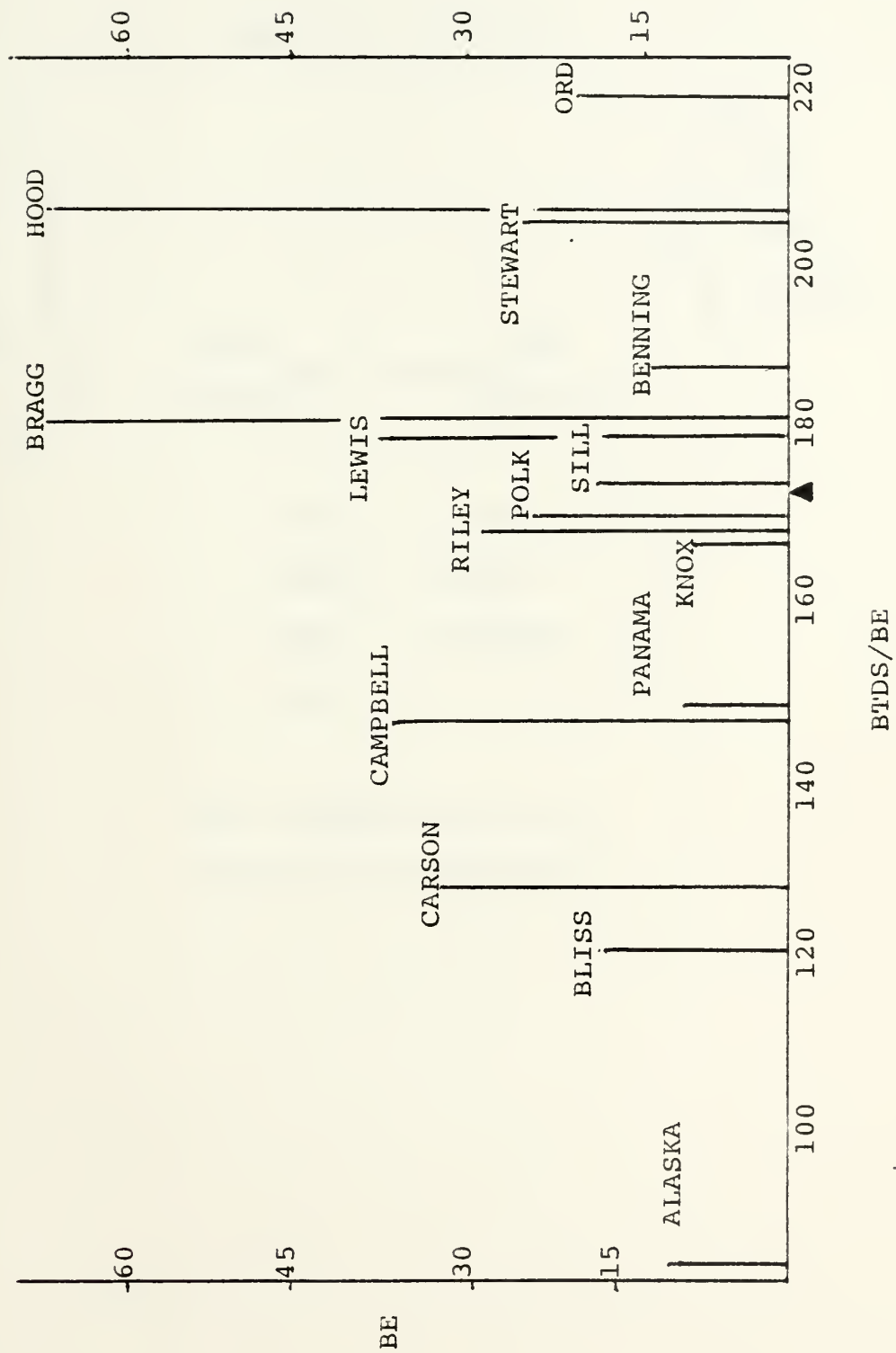
FORSCOM TRAINING INTENSITY PROJECTIONS¹⁴

TRAINING OVERVIEW

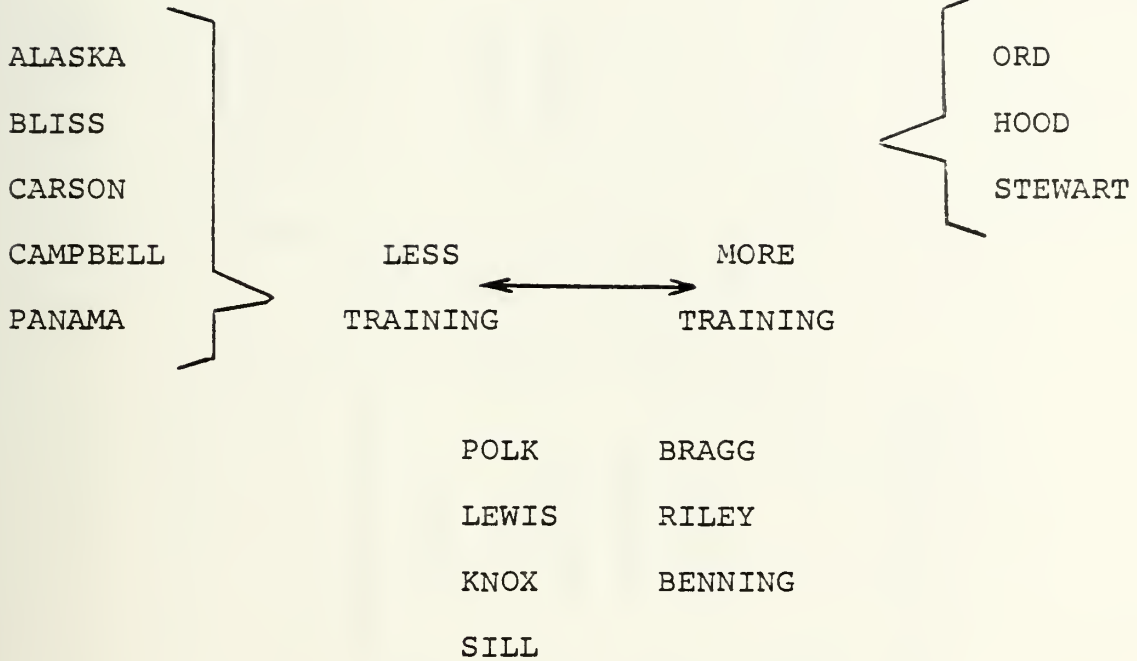
	<u>COB Guidance</u>	<u>COB Submission</u>	<u>UFR Submission</u>
Training of Individuals	43,282.6	51,744.7	16,014.8
Training thru Company Level	50,141.4	54,714.3	20,776.5
Training thru Battalion Level	42,237.8	43,393.6	19,375.9
Training Brigade/ Division	10,567.9	16,017.1	14,795.2
Force Sustainment	<u>104,699.1</u>	<u>90,985.5</u>	<u>43,100.0</u>
Training	250,928.8	256,855.2	114,112.4

¹⁴The FORSCOM training intensity projections were borrowed from Headquarters, U.S. Army Forces Command, Deputy Chief of Staff for Operations and Training, Fort McPherson, Georgia 30330.

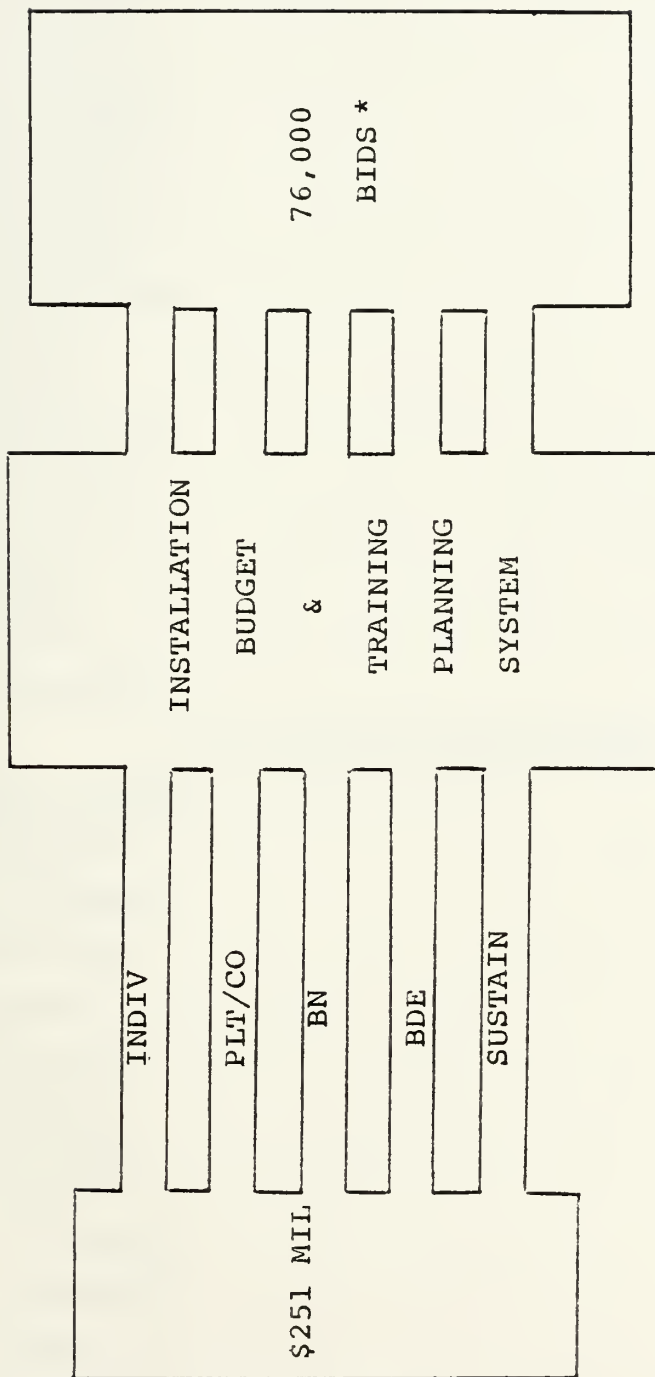
TRAINING INTENSITY



"TRAINING INTENSITY"



ARE PLANNING ABOUT THE
SAME LEVEL OF TRAINING



* AND WE WANT ABOUT 40,000 MORE!

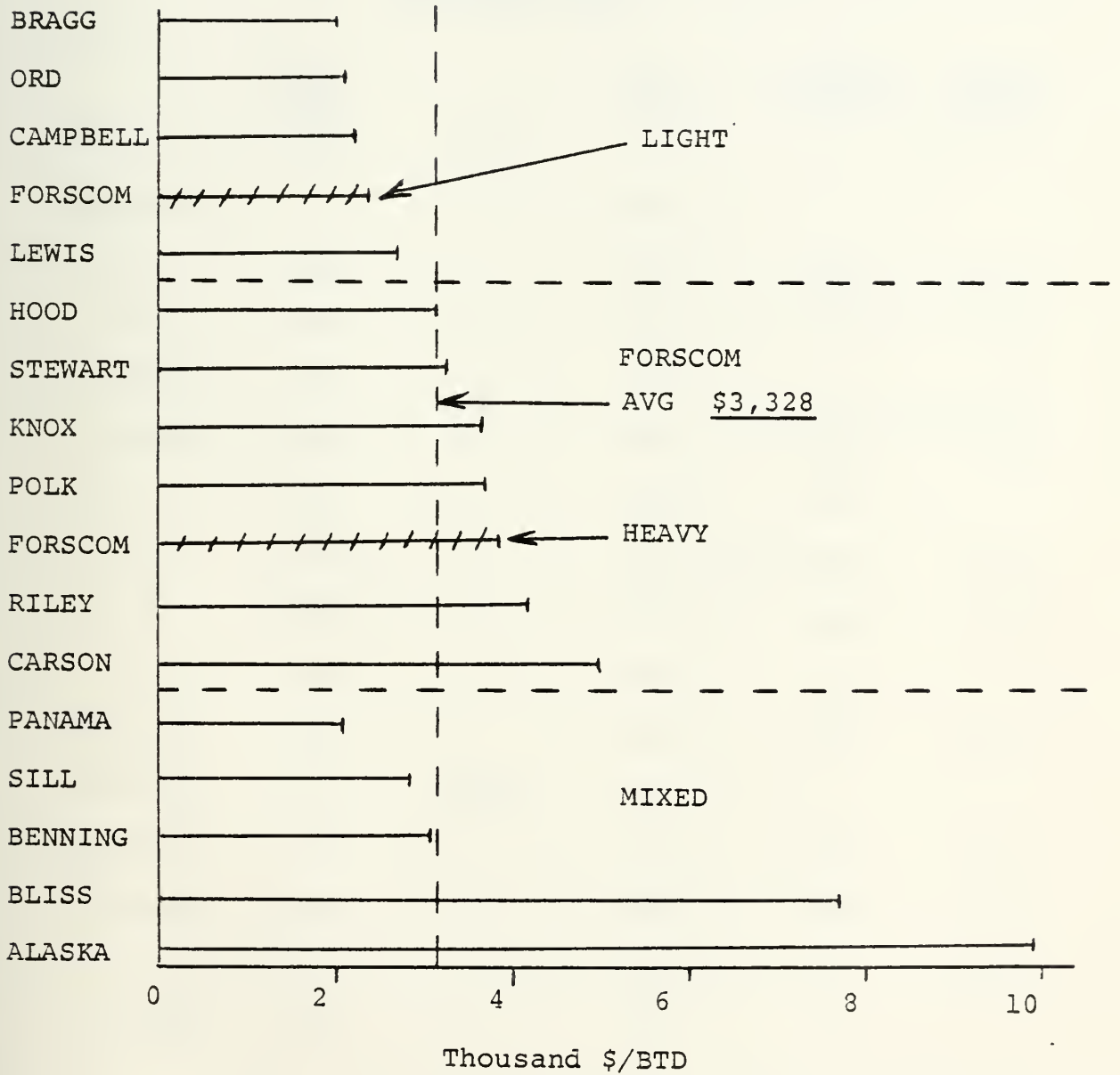
UFR's

<u>Installation</u>	<u>Total UFR</u>
FT BRAGG	\$41.1 MIL
FT HOOD	16.1 MIL
FT STEWART	11.1 MIL
FT LEWIS	6.3 MIL
FT POLK	6.1 MIL
FT BLISS	5.4 MIL
FT CAMPBELL	5.0 MIL
FT ORD	3.9 MIL
ALASKA	2.3 MIL
FT BENNING	1.4 MIL
FT RILEY	1.3 MIL
FT KNOX	1.0 MIL
PANAMA	1.0 MIL
FT SILL	1.0 MIL
FT CARSON	.3 MIL

UFR RELATIVE REQUIREMENTS

<u>Installation</u>	<u>\$/BN</u>
FT BRAGG	\$614K
FT STEWART	437K
FT BLISS	320K
ALASKA	289K
FT POLK	262K
FT HOOD	241K
FT LEWIS	173K
FT ORD	169K
FT CAMPBELL	137K
FT BENNING	116K
PANAMA	111K
FT KNOX	95K
FT SILL	53K
FT RILEY	47K
FT CARSON	9K

TRAINING COST



FINANCED BTD's

MANEUVER UNITS

	<u>81 BTDS</u>		<u>82 BTDS</u>	<u>DAYS CHANGE</u>	<u>% CHANGE</u>
82 AD	4637	SAME	4637	0	0
101 AD		?	4641	?	?
9 ID	4999	+	5494	+495	10%
7 ID	5346	-	5270	-76	1%
1ST CAV	5348	+	5352	+4	+
2D AR	5936	-	5678	-258	-4%
24 ID	4481	-	4464	-17	-
5 ID	4393.5	-	3321.82	-1071	-24%
4 ID	2975	+	3305.5	+330	+11%
1 (-) ID	4217	+	4236	+19	+
194 BDE	1652	+	2089	+437	+26%
197 BDE	1173	SAME	1173	-	-
172 BDE	519	+	684	+165	+31%
193 BDE	1285	+	1650	+365	+28%
3 ACR	192	+	263	+71	+36%
6 CBAC	832	-	831	-1	-

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A battalion/division
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for training resource
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